

DIARIA BRITANNICA: R
OR, THE *with price*
BRITISH DIARY:

AN
ALMANACK,
FOR THE
Year of **OUR LORD 1796.**

BEING
BISSEXTILE, OR LEAP YEAR.

CONTAINING,
A VARIETY of useful and entertaining MATTER in
ARTS and SCIENCES:

Calculated for the Improvement of the BRITISH YOUTH.

ALSO AN
EPHEMERIS,

Wherein are contained the Heliocentric and Geocentric Places
of the Planets, accurately calculated.

By **JOHN COTES & PATRICK HALL.**

The Ninth Almanack published of this Kind.



You Muses nine shew forth your learned lore,
To BRITISH YOUTH, all scientific store
Of profound knowledge, teaching them to know
Wisdom's true fount, where arts and science flow
For learned works a monument will raise
Be doubly crown'd with laurels and with bays

BIRMINGHAM,

Printed and Sold by **THOMAS PARSONS,**

AT THE WHOLESALE ALMANACK WAREHOUSE, AND BY CHAMBERS
AND WHITROW, JEWRY-STREET, LONDON. (*Price One Shilling.*)

BRITISH DIARY.

Chronological Notes for the Year 1796.

| | | |
|-------------------------|-------------------------|----------------------|
| Julian Period 6509 | Dominical Letters CB | Easter Day March 27 |
| World's Creation 5752 | Epact — 20 | Whit Sunday May 15 |
| Roman Indiction 14 | Numb. of Direction 15 | Trinity Sund. May 22 |
| Solar Cycle — 13 | Septuagesima S. Jan. 24 | Advent Sund. Nov. 27 |
| Lunar Cycle, or G.n. 11 | Shrove Sund. Feb. 7 | Millennium Years 145 |

Astronomical Characters used in this Diary.

| | | | | |
|----------|-------------|------------|-----------|--------------|
| Aries ♈ | Virgo ♍ | Aquarius ♒ | Mars ♂ | N. Node ♄ |
| Taurus ♉ | Libra ♎ | Pisces ♓ | Venus ♀ | S. Node ♋ |
| Gemini ♊ | Scorpio ♏ | G. Sidus ♂ | Mercury ☿ | Earth ☷ |
| Cancer ♋ | Sagittary ♐ | Saturn ♄ | Sun ☉ | Part. For. ☿ |
| Leo ♌ | Capricorn ♑ | Jupiter ♃ | Moon ☾ | |

☿ Conjunction Δ Trine, when 4 signs distant
 * Sextile, when 2 signs distant Q Quintile, when 5 signs distant
 □ Quartile, when 3 signs distant 8 Opposition, when 6 signs distant

Of the Four Quarters of the Year.

| | |
|--------------------------------------|-------------------------------------|
| Spring Qu. begins March 19, 8h. 42m. | Autumn Q. be. Sept. 22, 8h. 29m. |
| Summer Qu. beg. June 20, 6h. 36a. | Winter Qu. be. Dec. 21, 1h. 7m. mo. |

ECLIPSES for the YEAR 1796.

IN the course of this year there will be four Eclipses; three of the Sun, and one of the Moon, being all invisible to our Isle of Great Britain. They will happen in the following order:—

I. Is an invisible Eclipse of the Sun, on Sunday the 10th day of January the conjunction at 6h. 5m. in the morning, in longitude $13^{\circ} 50'$ the Moon's latitude $0^{\circ} 45''$ north; the Sun will be centrally eclipsed on the meridian at 6h. 5m. in longitude $88^{\circ} 46'$ east, and latitude 21 degrees south.

II. Is of the Sun, invisible, on Monday the 4th day of July; the conjunction at 11h. 1m. in longitude $13^{\circ} 31'$ Moon's latitude $14^{\circ} 45''$ north the Sun will be centrally eclipsed on the meridian at 10h. 59m. in longitude west $164^{\circ} 46'$ and latitude north $36\frac{1}{2}^{\circ}$.

III. Is of the Moon, also invisible on Wednesday the 14th day of December; the beginning at 1h. 18m. 30s. past noon; middle at 2h. 21m. at the end at 3h. 34m. afternoon. Digits eclipsed are $6^{\circ} 1'$ on the Moon's north limb.

IV. The last is likewise an invisible Eclipse of the Sun, on Thursday the 29th day of December; the conjunction at 5h. 59m. in the morning, in longitude $13^{\circ} 22'$ and the Moon's latitude south $36^{\circ} 30''$ the Sun will be centrally eclipsed on the meridian, at 5h. 54m. in longitude $91^{\circ} 30'$ east, at latitude $65^{\circ} 31'$ south.

Likewise on Friday the 21st day of October, Saturn will be hid by the Moon's southern limb. The immersion at 1h. 21m. emersion at 2h. 14m. in the morning.

An Ex. to find the Planets places Jan. 1.

Look into the calendar, and table of minutes for Jan. 1, and you will find
 ♄ in ♈ 7de. 59m. ♃ in ♏ 7de. 54m. ♀ in ♒ 1ode. 54m. ♂ in ♏ 4
 58m. ♄ in ♋ 29de. 47m. &c.

A TABLE of the MOON's southing for the Year 1796.

| M | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| D | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. |
| 1 | 5m27 | 6 | 2 | 5 | 26 | 6 | 41 | 7 | 8 | 8 | 12 | 8 |
| 2 | 6 | 9 | 6 | 46 | 6 | 13 | 7 | 31 | 7 | 57 | 9 | 2 |
| 3 | 6 | 51 | 7 | 32 | 7 | 1 | 8 | 22 | 8 | 45 | 9 | 54 |
| 4 | 7 | 33 | 8 | 16 | 7 | 51 | 9 | 12 | 9 | 35 | 10 | 5 |
| 5 | 8 | 15 | 9 | 8 | 8 | 42 | 10 | 2 | 10 | 25 | 11 | 51 |
| 6 | 8 | 59 | 9 | 5 | 9 | 33 | 10 | 52 | 11 | 17 | 12 | 54 |
| 7 | 9 | 45 | 10 | 49 | 10 | 24 | 11 | 42 | 12 | 1 | 1 | 58 |
| 8 | 10 | 33 | 11 | 4 | 11 | 15 | 12 | 1 | 1 | 3 | 2 | 53 |
| 9 | 11 | 22 | 12 | 31 | 12 | 5 | 1 | 22 | 2 | 13 | 3 | 59 |
| 10 | 12 | 1 | 1 | 20 | 1 | 55 | 2 | 24 | 3 | 1 | 4 | 53 |
| 11 | 1 | 2 | 9 | 1 | 45 | 3 | 22 | 1 | 17 | 5 | 43 | 5 |
| 12 | 1 | 52 | 2 | 57 | 2 | 30 | 4 | 16 | 6 | 30 | 6 | 30 |
| 13 | 2 | 41 | 3 | 46 | 3 | 29 | 5 | 22 | 7 | 11 | 7 | 14 |
| 14 | 3 | 29 | 4 | 36 | 4 | 25 | 6 | 21 | 7 | 2 | 7 | 57 |
| 15 | 4 | 16 | 5 | 29 | 5 | 27 | 7 | 18 | 7 | 50 | 8 | 39 |
| 16 | 5 | 3 | 6 | 24 | 6 | 20 | 8 | 11 | 8 | 35 | 9 | 22 |
| 17 | 5 | 52 | 7 | 21 | 7 | 19 | 9 | 19 | 10 | 18 | 10 | 7 |
| 18 | 6 | 43 | 8 | 20 | 8 | 17 | 9 | 48 | 10 | 1 | 10 | 52 |
| 19 | 7 | 37 | 9 | 20 | 9 | 13 | 10 | 33 | 10 | 44 | 11 | 39 |
| 20 | 8 | 34 | 10 | 18 | 10 | 6 | 11 | 17 | 11 | 28 | morn | morn |
| 21 | 9 | 34 | 11 | 14 | 10 | 56 | morn | morn | 0 | 28 | 0 | 48 |
| 22 | 10 | 35 | morn | 11 | 43 | 0 | 0 | 13 | 1 | 17 | 1 | 36 |
| 23 | 11 | 36 | 0 | 7 | morn | 0 | 44 | 1 | 2 | 6 | 2 | 23 |
| 24 | morn | 0 | 5 | 0 | 29 | 1 | 29 | 1 | 47 | 2 | 55 | 3 |
| 25 | 0 | 35 | 1 | 44 | 1 | 13 | 2 | 36 | 3 | 42 | 3 | 55 |
| 26 | 1 | 30 | 2 | 29 | 1 | 57 | 3 | 25 | 4 | 28 | 4 | 16 |
| 27 | 2 | 21 | 3 | 13 | 2 | 42 | 3 | 50 | 4 | 14 | 5 | 14 |
| 28 | 3 | 8 | 3 | 57 | 3 | 27 | 4 | 40 | 5 | 7 | 6 | 19 |
| 29 | 3 | 53 | 4 | 41 | 4 | 13 | 5 | 30 | 5 | 6 | 47 | 12 |
| 30 | 4 | 36 | 5 | 1 | 5 | 16 | 6 | 37 | 7 | 37 | 8 | 9 |
| 31 | 5 | 10 | 5 | 51 | 6 | 7 | 24 | 10 | 10 | 11 | 4 | 10 |

A TABLE of the Seven Stars southing, or Times when they pass the Meridian.

| D | A. | A. | A. | A. | A. | M. | M. | M. | M. | M. | N. | A. |
|---|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 8 | 45 | 6 | 32 | 4 | 40 | 5 | 47 | 9 | 56 | 10 | 53 |
| 2 | 7 | 8 | 16 | 8 | 4 | 17 | 2 | 25 | 9 | 33 | 10 | 28 |
| 3 | 13 | 7 | 52 | 5 | 43 | 5 | 5 | 30 | 9 | 10 | 4 | 8 |
| 4 | 10 | 7 | 26 | 5 | 21 | 3 | 1 | 41 | 11 | 45 | 9 | 30 |
| 5 | 2 | 7 | 14 | 5 | 8 | 3 | 12 | 11 | 21 | 9 | 14 | 7 |

Use of the Tables. To find the Time of High Water.

| EXAM. | On Jan. 1st Moon souths at | 5 27 m. | Aldebaran | 0 45 7 | 29 |
|--|----------------------------|-----------|-------------|---------|----|
| Add for N. and F. Moon for London | - | 2 30 | Capella | 1 26 | - |
| Time of High Water at London | - | 7 57 m. | Betelgeuse | 2 8 6 | 41 |
| Add for next Low Water | - | 5 49 | Alphard | 5 42 5 | 24 |
| Time of Low Water at London, | - | 1 46 a. | Regulus | 6 21 7 | 11 |
| Ex. 1.) On Jan. 1, Seven Stars souths at | - | 8 45 a. | Upp. point. | 7 15 | - |
| Semidiurnal arc. subtract and add | - | 8 17 | Virg. spike | 9 30 5 | 12 |
| Seven Stars rises Jan. 1st at | - | 0 28 a. | Arcturus | 10 26 7 | 55 |
| Seven Stars sets next morning Jan. 2, | - | 5 2 m. | Antares | 12 41 3 | 34 |
| Ex. 2.) Seven Stars souths Jan. 1 at | - | 8 45 a. | Algethi | 13 38 7 | 21 |
| Sirius souths after the Seven Stars | - | 3 1 | Lyra | 14 52 | - |
| Sirius south Jan. 1st afternoon | - | 11. 46 a. | Atrair | 16 46 | 46 |
| Semidiurnal arc subtract and add | - | 4 37 | Fomalhaut | 19 8 2 | 52 |
| Sirius rises Jan. 1st afternoon | - | 7 9 a. | Pole star | 21 12 | - |
| Sirius sets Jan. 2d morning | - | 4 23 m. | Almark | 22 16 | - |
| | | | Algol | 23 15 | - |
| | | | Algenib | 23 37 | - |

A TABLE of MINUTES, or the Residue of the Planets' Places.

| January. | | | | | | | | | | | February. | | | | | | | | | | | March. | | | | | | | | | | | April. | | | | | | | | | | |
|----------|----|----|----|----|----|----|----|----|----|----|-----------|----|----|----|----|----|----|----|----|----|----|--------|----|----|---|---|---|---|---|---|---|---|--------|---|---|---|---|--|--|--|--|--|--|
| M | D | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | | | | | | |
| 1 | 59 | 54 | 54 | 58 | 47 | 1 | 5 | 45 | 7 | 44 | 2 | 7 | 51 | 15 | 2 | 3 | 2 | 19 | 38 | 21 | 59 | 45 | 5 | 2 | | | | | | | | | | | | | | | | | | | |
| 3 | 57 | 47 | 20 | 9 | 17 | 20 | 0 | 44 | 36 | 50 | 53 | 36 | 46 | 21 | 30 | 2 | 28 | 16 | 34 | 32 | 24 | 29 | 25 | 25 | | | | | | | | | | | | | | | | | | | |
| 5 | 55 | 40 | 47 | 19 | 47 | 29 | 55 | 43 | 4 | 56 | 21 | 59 | 41 | 27 | 58 | 0 | 53 | 21 | 30 | 44 | 49 | 12 | 45 | 56 | | | | | | | | | | | | | | | | | | | |
| 7 | 52 | 34 | 14 | 29 | 17 | 40 | 50 | 43 | 33 | 2 | 50 | 15 | 35 | 33 | 26 | 58 | 18 | 42 | 2 | 5 | 13 | 54 | 4 | 36 | | | | | | | | | | | | | | | | | | | |
| 9 | 49 | 28 | 41 | 39 | 47 | 53 | 45 | 43 | 1 | 7 | 18 | 20 | 30 | 40 | 54 | 55 | 42 | 25 | 24 | 8 | 37 | 34 | 23 | 23 | | | | | | | | | | | | | | | | | | | |
| 11 | 46 | 22 | 9 | 49 | 17 | 8 | 4 | 44 | 30 | 12 | 46 | 11 | 25 | 47 | 2 | 51 | 7 | 34 | 21 | 20 | 1 | 12 | 41 | 17 | | | | | | | | | | | | | | | | | | | |
| 13 | 43 | 16 | 37 | 58 | 47 | 24 | 35 | 46 | 59 | 16 | 14 | 36 | 40 | 54 | 48 | 47 | 32 | 7 | 18 | 32 | 24 | 48 | 59 | 18 | | | | | | | | | | | | | | | | | | | |
| 15 | 40 | 11 | 5 | 7 | 16 | 43 | 30 | 48 | 27 | 20 | 42 | 40 | 15 | 2 | 16 | 41 | 56 | 5 | 15 | 44 | 47 | 22 | 16 | 26 | | | | | | | | | | | | | | | | | | | |
| 17 | 36 | 6 | 33 | 16 | 46 | 4 | 25 | 50 | 50 | 24 | 9 | 9 | 10 | 10 | 43 | 35 | 20 | 27 | 12 | 57 | 10 | 55 | 33 | 40 | | | | | | | | | | | | | | | | | | | |
| 19 | 32 | 2 | 2 | 15 | 15 | 20 | 20 | 53 | 25 | 27 | 36 | 2 | 5 | 18 | 10 | 28 | 43 | 9 | 10 | 10 | 33 | 27 | 49 | 2 | | | | | | | | | | | | | | | | | | | |
| 21 | 28 | 58 | 30 | 33 | 45 | 51 | 14 | 56 | 53 | 29 | 3 | 16 | 1 | 27 | 37 | 19 | 6 | 10 | 8 | 23 | 55 | 57 | 4 | 31 | | | | | | | | | | | | | | | | | | | |
| 23 | 24 | 55 | 58 | 41 | 14 | 19 | 9 | 59 | 22 | 31 | 29 | 49 | 56 | 36 | 3 | 10 | 28 | 30 | 6 | 30 | 17 | 24 | 19 | 5 | | | | | | | | | | | | | | | | | | | |
| 25 | 20 | 52 | 26 | 49 | 43 | 48 | 4 | 35 | 32 | 57 | 46 | 52 | 46 | 29 | 0 | 50 | 2 | 4 | 50 | 38 | 48 | 33 | 47 | | | | | | | | | | | | | | | | | | | | |
| 27 | 16 | 50 | 55 | 57 | 12 | 18 | 59 | 7 | 19 | 33 | 23 | 3 | 48 | 56 | 55 | 48 | 12 | 46 | 3 | 4 | 58 | 9 | 47 | 36 | | | | | | | | | | | | | | | | | | | |
| 29 | 12 | 48 | 3 | 4 | 42 | 49 | 54 | 12 | 48 | 3 | 19 | 19 | 44 | 6 | 21 | 36 | 34 | 47 | 2 | 18 | 18 | 29 | 0 | 31 | | | | | | | | | | | | | | | | | | | |

| May. | | | | | | | | | | | June. | | | | | | | | | | | July. | | | | | | | | | | | August. | | | | | | | | | | |
|------|----|----|----|----|----|----|----|----|----|----|-------|----|----|----|----|----|----|----|----|----|----|-------|----|----|---|---|---|---|---|---|---|---|---------|---|---|---|---|--|--|--|--|--|--|
| M | D | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | | | | | | |
| 1 | 32 | 38 | 49 | 12 | 33 | 11 | 26 | 41 | 25 | 48 | 4 | 8 | 18 | 7 | 43 | 40 | 12 | 42 | 53 | 37 | 12 | 22 | 31 | | | | | | | | | | | | | | | | | | | | |
| 3 | 1 | 46 | 57 | 6 | 22 | 42 | 14 | 42 | 51 | 56 | 38 | 45 | 13 | 51 | 7 | 16 | 30 | 5 | 49 | 0 | 25 | 31 | 4 | 29 | | | | | | | | | | | | | | | | | | | |
| 5 | 0 | 1 | 16 | 19 | 31 | 53 | 16 | 58 | 1 | 25 | 25 | 14 | 18 | 47 | 6 | 50 | 14 | 50 | 56 | 18 | 13 | 54 | 54 | 45 | | | | | | | | | | | | | | | | | | | |
| 7 | 59 | 16 | 36 | 20 | 40 | 4 | 19 | 14 | 11 | 52 | 10 | 36 | 23 | 2 | 4 | 26 | 52 | 34 | 3 | 30 | 1 | 23 | 42 | 17 | | | | | | | | | | | | | | | | | | | |
| 9 | 59 | 36 | 53 | 35 | 48 | 34 | 22 | 29 | 19 | 18 | 51 | 32 | 29 | 16 | 2 | 5 | 22 | 23 | 10 | 42 | 48 | 54 | 32 | 1 | | | | | | | | | | | | | | | | | | | |
| 11 | 59 | 53 | 13 | 39 | 56 | 56 | 25 | 44 | 27 | 42 | 31 | 20 | 35 | 31 | 58 | 48 | 42 | 20 | 18 | 53 | 34 | 26 | 23 | 53 | | | | | | | | | | | | | | | | | | | |
| 13 | 59 | 13 | 29 | 39 | 1 | 17 | 28 | 0 | 35 | 4 | 9 | 55 | 41 | 46 | 53 | 34 | 53 | 30 | 25 | 4 | 20 | 0 | 15 | 51 | | | | | | | | | | | | | | | | | | | |
| 15 | 0 | 19 | 45 | 36 | 5 | 34 | 32 | 15 | 41 | 26 | 44 | 14 | 47 | 0 | 48 | 33 | 57 | 58 | 32 | 15 | 6 | 37 | 11 | 53 | | | | | | | | | | | | | | | | | | | |
| 17 | 0 | 45 | 1 | 32 | 9 | 16 | 36 | 31 | 47 | 48 | 14 | 14 | 53 | 14 | 42 | 16 | 52 | 46 | 39 | 25 | 51 | 17 | 19 | 55 | | | | | | | | | | | | | | | | | | | |
| 19 | 1 | 1 | 16 | 25 | 12 | 50 | 40 | 47 | 52 | 10 | 38 | 58 | 59 | 28 | 36 | 15 | 36 | 56 | 47 | 35 | 26 | 59 | 45 | 57 | | | | | | | | | | | | | | | | | | | |
| 21 | 2 | 16 | 31 | 15 | 12 | 4 | 44 | 2 | 56 | 31 | 57 | 24 | 6 | 42 | 28 | 15 | 10 | 30 | 55 | 45 | 21 | 43 | 20 | 56 | | | | | | | | | | | | | | | | | | | |
| 23 | 3 | 31 | 45 | 2 | 11 | 30 | 48 | 18 | 0 | 52 | 15 | 33 | 12 | 56 | 20 | 16 | 36 | 28 | 2 | 55 | 6 | 29 | 57 | 51 | | | | | | | | | | | | | | | | | | | |
| 25 | 4 | 45 | 59 | 45 | 19 | 4 | 53 | 33 | 3 | 16 | 32 | 22 | 18 | 9 | 12 | 24 | 53 | 48 | 10 | 4 | 51 | 16 | 36 | 41 | | | | | | | | | | | | | | | | | | | |
| 27 | 6 | 59 | 11 | 25 | 5 | 27 | 58 | 48 | 5 | 45 | 42 | 54 | 25 | 22 | 2 | 36 | 1 | 32 | 17 | 13 | 35 | 5 | 24 | 26 | | | | | | | | | | | | | | | | | | | |
| 29 | 8 | 11 | 23 | 3 | 59 | 38 | 3 | 3 | 7 | 22 | 44 | 10 | 32 | 35 | 5 | 50 | 2 | 39 | 25 | 22 | 19 | 56 | 30 | 7 | | | | | | | | | | | | | | | | | | | |

| September. | | | | | | | | | | | October. | | | | | | | | | | | November. | | | | | | | | | | | December. | | | | | | | | | | |
|------------|----|----|----|----|----|----|----|----|----|----|----------|----|----|----|----|----|----|----|----|----|----|-----------|----|----|---|---|---|---|---|---|---|---|-----------|---|---|---|---|--|--|--|--|--|--|
| M | D | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | h | m | s | u | | | | | | |
| 1 | 37 | 34 | 55 | 18 | 5 | 29 | 27 | 47 | 20 | 40 | 30 | 44 | 0 | 21 | 15 | 58 | 13 | 21 | 50 | 29 | 7 | 10 | 32 | 44 | | | | | | | | | | | | | | | | | | | |
| 2 | 44 | 41 | 39 | 14 | 36 | 58 | 53 | 48 | 16 | 54 | 14 | 0 | 5 | 16 | 16 | 21 | 25 | 26 | 52 | 20 | 21 | 36 | 55 | 48 | | | | | | | | | | | | | | | | | | | |
| 3 | 51 | 48 | 23 | 12 | 11 | 21 | 40 | 48 | 6 | 2 | 0 | 6 | 9 | 11 | 19 | 44 | 32 | 15 | 54 | 10 | 35 | 3 | 18 | 52 | | | | | | | | | | | | | | | | | | | |
| 4 | 59 | 56 | 8 | 11 | 50 | 41 | 46 | 49 | 58 | 24 | 49 | 1 | 13 | 5 | 23 | 8 | 50 | 48 | 55 | 0 | 49 | 30 | 41 | 57 | | | | | | | | | | | | | | | | | | | |
| 5 | 7 | 2 | 53 | 12 | 36 | 57 | 53 | 49 | 50 | 40 | 41 | 44 | 17 | 59 | 28 | 32 | 5 | 7 | 56 | 51 | 4 | 56 | 5 | 3 | | | | | | | | | | | | | | | | | | | |
| 6 | 13 | 8 | 38 | 14 | 32 | 6 | 0 | 40 | 42 | 56 | 35 | 16 | 21 | 52 | 33 | 36 | 20 | 6 | 57 | 41 | 2 | 23 | 29 | 9 | | | | | | | | | | | | | | | | | | | |
| 7 | 22 | 14 | 23 | 18 | 38 | 13 | 6 | 49 | 36 | 14 | 30 | 27 | 25 | 44 | 39 | 20 | 36 | 36 | 57 | 31 | 36 | 50 | 53 | 15 | | | | | | | | | | | | | | | | | | | |
| 8 | 29 | 19 | 8 | 23 | 49 | 15 | 13 | 48 | 30 | 32 | 27 | 16 | 29 | 37 | 47 | 44 | 53 | 32 | 57 | 21 | 53 | 17 | 18 | 20 | | | | | | | | | | | | | | | | | | | |
| 9 | 37 | 24 | 54 | 29 | 2 | 12 | 19 | 47 | 26 | 50 | 26 | 41 | 33 | 30 | 54 | 9 | 11 | 50 | 57 | 11 | 11 | 44 | 43 | 30 | | | | | | | | | | | | | | | | | | | |
| 10 | 44 | 29 | 40 | 36 | 17 | 5 | 25 | 45 | 22 | 10 | 28 | 36 | 36 | 22 | 2 | 35 | 29 | 20 | 57 | 1 | 29 | 11 | 8 | 39 | | | | | | | | | | | | | | | | | | | |
| 11 | 52 | 33 | 27 | 44 | 37 | 52 | 31 | 43 | 20 | 30 | 31 | 59 | 39 | 14 | 11 | 0 | 48 | 0 | 57 | 51 | 47 | 38 | 33 | 49 | | | | | | | | | | | | | | | | | | | |
| 12 | 59 | 56 | 14 | 57 | 3 | 37 | 37 | 40 | 18 | 50 | 35 | 42 | 42 | 5 | 21 | 26 | 8 | 49 | 57 | 41 | 7 | 5 | 59 | 59 | | | | | | | | | | | | | | | | | | | |
| 13 | 6 | 1 | 3 | 36 | 19 | 43 | 43 | 36 | 16 | 12 | 42 | 54 | 44 | 56 | 31 | 52 | 28 | 43 | 56 | 31 | 27 | 32 | 25 | 19 | | | | | | | | | | | | | | | | | | | |
| 14 | 13 | 4 | 49 | 14 | 17 | 54 | 48 | 32 | 15 | 33 | 50 | 33 | 46 | 47 | 13 | 18 | 49 | 41 | 55 | 21 | 47 | 59 | 52 | 23 | | | | | | | | | | | | | | | | | | | |
| 15 | 20 | 45 | 37 | 26 | 50 | 22 | 53 | 28 | 14 | 55 | 58 | 1 | 48 | 38 | 55 | 44 | 10 | 41 | 54 | 11 | 9 | 26 | 18 | 36 | | | | | | | | | | | | | | | | | | | |

Gewcentric Latitude.

JANUARY hath XXXI Days.

| D | h | f | 24 | 1 | 28 | 1 | 4 |
|----|----|----|----|----|----|----|----|
| 10 | 47 | 1 | 48 | 0 | 41 | 1 | 14 |
| 13 | 0 | 48 | 1 | 45 | 0 | 42 | 1 |
| 25 | 0 | 48 | 1 | 42 | 0 | 42 | 1 |

Last Quarter, 2 day, 1 morn.
 New Moon, 10 day, 6 morn.
 First Quarter, 17 day, 5 aftern.
 Full Moon, 24 day, 10 morn.
 Last Quarter, 31 day, 9 night.

Heliocentric Longitude.

| D | h | f | 24 | 1 | 28 | 1 | 4 |
|-----|----|----|----|----|----|----|----|
| 15 | 23 | 11 | 18 | 16 | 29 | 1 | 51 |
| 75 | 27 | 11 | 32 | 17 | 0 | 4 | 33 |
| 135 | 32 | 11 | 45 | 17 | 32 | 7 | 15 |
| 195 | 36 | 11 | 59 | 18 | 4 | 9 | 59 |
| 255 | 41 | 12 | 12 | 18 | 35 | 12 | 43 |

| MW | Festival | Alp. & weath. | D | h | f | 24 | 1 | 28 | 1 | 4 |
|----|-------------------|---------------|--------|----|---|----|----|----|----|----|
| D | Days. | rises. | 1 | h | f | 24 | 1 | 28 | 1 | 4 |
| 1 | F Circumcif. | ☐ ☿ ☿ | Morn | 7 | 7 | 10 | 4 | 29 | 2 | 10 |
| 2 | S ☿ fo. 9. 31 n | Snow, | 0 | 0 | 5 | 7 | 7 | 11 | 5 | 3 |
| 3 | C ☿ S. aft. Chr. | ☿ ☿ ☿ | 1 | 7 | 5 | 7 | 7 | 11 | 6 | 2 |
| 4 | M ☿ fo. 3. 31 m | ☿ ☿ ☿ | 2 | 11 | 5 | 7 | 7 | 11 | 6 | 3 |
| 5 | T ☿ ☿ ☿ | ☿ ☿ ☿ | 3 | 15 | 4 | 7 | 7 | 11 | 7 | 4 |
| 6 | W Epiphany | * ☿ ☿ | 4 | 20 | 4 | 7 | 7 | 12 | 7 | 6 |
| 7 | T ☿ fo. 9. 9 n | ☿ ☿ ☿ | 5 | 24 | 3 | 7 | 7 | 12 | 8 | 7 |
| 8 | F Lucian | [☿ ☿ ☿ | 6 | 21 | 2 | 7 | 7 | 12 | 9 | 8 |
| 9 | S Cl. fast 7. 34 | or cold | D fets | 1 | 7 | 7 | 12 | 9 | 9 | 14 |
| 10 | C ☿ S. aft. Eph. | rain. | 4 | 15 | 1 | 7 | 7 | 12 | 10 | 11 |
| 11 | M Plo. Mond. | ☿ ☿ ☿ | 5 | 12 | 1 | 7 | 7 | 13 | 10 | 12 |
| 12 | T ☿ set 6. 1 n | ☿ ☿ ☿ | 6 | 28 | 2 | 7 | 7 | 13 | 11 | 13 |
| 13 | W Hil. C. T. b. | More | 7 | 38 | 3 | 7 | 7 | 13 | 11 | 14 |
| 14 | T Ox. T. beg. | mild. | 8 | 50 | 4 | 7 | 7 | 13 | 12 | 15 |
| 15 | F Cio. fl. 9. 5 | ☿ ☿ ☿ | 10 | 3 | 5 | 7 | 7 | 14 | 13 | 16 |
| 16 | S ☿ ☿ ☿ | Turbu. | 11 | 27 | 5 | 7 | 7 | 14 | 13 | 18 |
| 17 | C ☿ S. aft. E. h. | ☐ ☿ ☿ | Morn | 5 | 7 | 7 | 14 | 14 | 19 | 28 |
| 18 | M Qu. birth d. | ☐ ☿ ☿ | 0 | 34 | 5 | 7 | 7 | 14 | 14 | 21 |
| 19 | T ☿ fo. 8. 15 n | general | 1 | 51 | 4 | 7 | 7 | 15 | 15 | 22 |
| 20 | W Fabian ret. | ☿ ☿ ☿ | 3 | 11 | 4 | 7 | 7 | 15 | 15 | 23 |
| 21 | T Agnes | to the | 4 | 28 | 3 | 7 | 6 | 15 | 16 | 24 |
| 22 | F Vincent | ☿ ☿ ☿ | 5 | 41 | 1 | 7 | 6 | 15 | 17 | 26 |
| 23 | S Hil. T. beg. | [☿ ☿ ☿ | 6 | 44 | n | 7 | 6 | 15 | 17 | 27 |
| 24 | C Sept. Sund. | end. | 7 | 36 | | 7 | 6 | 16 | 18 | 28 |
| 25 | M Co. St. Paul | D rif. | 3 | 7 | 6 | 16 | 18 | 29 | 11 | 5 |
| 26 | T ☿ set 6. 44 | ☿ ☿ ☿ | 5 | 54 | 4 | 7 | 6 | 16 | 19 | 13 |
| 27 | W Pr. A. Fr. b | ☿ ☿ ☿ | 7 | 11 | 4 | 7 | 6 | 16 | 19 | 21 |
| 28 | T ☿ ☿ ☿ | ☿ ☿ ☿ | 8 | 23 | 5 | 7 | 6 | 17 | 20 | 3 |
| 29 | F Cl. fast 13. 34 | ☿ ☿ ☿ | 9 | 35 | 5 | 7 | 6 | 17 | 21 | 4 |
| 30 | S K. Ch. I. M. | ☿ ☿ ☿ | 10 | 41 | 5 | 7 | 6 | 17 | 21 | 5 |
| 31 | C Sexa. Sund. | ☿ ☿ ☿ | 11 | 49 | 5 | 7 | 6 | 17 | 22 | 7 |

| D | D. L. | Sun beg. | Sun rise | Sun set. | D. L. | leng. of D. | Day inc. | Declination. |
|----|-------|----------|----------|----------|-------|-------------|----------|--------------|
| 1 | 5 | 56 | 8 | 23 | 58 | 6 | 47 | 56 |
| 7 | 5 | 51 | 7 | 57 | 4 | 3 | 6 | 98 |
| 13 | 5 | 47 | 7 | 52 | 4 | 8 | 6 | 138 |
| 19 | 5 | 41 | 7 | 44 | 4 | 16 | 6 | 198 |
| 25 | 5 | 34 | 7 | 36 | 4 | 24 | 6 | 268 |

| | D ¹ | D ² |
|------------|----------------|----------------|
| 10 | 10 | 10 |
| 13 | 13 | 13 |
| 25 | 25 | 25 |
| 30 | 30 | 30 |
| Last New | Last New | Last New |
| First Full | First Full | First Full |
| Last | Last | Last |
| M | M | M |
| V | V | V |
| D | D | D |
| 1 | 1 | 1 |
| 2 | 2 | 2 |
| 3 | 3 | 3 |
| 4 | 4 | 4 |
| 5 | 5 | 5 |
| 6 | 6 | 6 |
| 7 | 7 | 7 |
| 8 | 8 | 8 |
| 9 | 9 | 9 |
| 10 | 10 | 10 |
| 11 | 11 | 11 |
| 12 | 12 | 12 |
| 13 | 13 | 13 |
| 14 | 14 | 14 |
| 15 | 15 | 15 |
| 16 | 16 | 16 |
| 17 | 17 | 17 |
| 18 | 18 | 18 |
| 19 | 19 | 19 |
| 20 | 20 | 20 |
| 21 | 21 | 21 |
| 22 | 22 | 22 |
| 23 | 23 | 23 |
| 24 | 24 | 24 |
| 25 | 25 | 25 |
| 26 | 26 | 26 |
| 27 | 27 | 27 |
| 28 | 28 | 28 |
| 29 | 29 | 29 |
| 30 | 30 | 30 |
| 31 | 31 | 31 |
| 32 | 32 | 32 |
| 33 | 33 | 33 |
| 34 | 34 | 34 |
| 35 | 35 | 35 |
| 36 | 36 | 36 |
| 37 | 37 | 37 |
| 38 | 38 | 38 |
| 39 | 39 | 39 |
| 40 | 40 | 40 |
| 41 | 41 | 41 |
| 42 | 42 | 42 |
| 43 | 43 | 43 |
| 44 | 44 | 44 |
| 45 | 45 | 45 |
| 46 | 46 | 46 |
| 47 | 47 | 47 |
| 48 | 48 | 48 |
| 49 | 49 | 49 |
| 50 | 50 | 50 |
| 51 | 51 | 51 |
| 52 | 52 | 52 |
| 53 | 53 | 53 |
| 54 | 54 | 54 |
| 55 | 55 | 55 |
| 56 | 56 | 56 |
| 57 | 57 | 57 |
| 58 | 58 | 58 |
| 59 | 59 | 59 |
| 60 | 60 | 60 |
| 61 | 61 | 61 |
| 62 | 62 | 62 |
| 63 | 63 | 63 |
| 64 | 64 | 64 |
| 65 | 65 | 65 |
| 66 | 66 | 66 |
| 67 | 67 | 67 |
| 68 | 68 | 68 |
| 69 | 69 | 69 |
| 70 | 70 | 70 |
| 71 | 71 | 71 |
| 72 | 72 | 72 |
| 73 | 73 | 73 |
| 74 | 74 | 74 |
| 75 | 75 | 75 |
| 76 | 76 | 76 |
| 77 | 77 | 77 |
| 78 | 78 | 78 |
| 79 | 79 | 79 |
| 80 | 80 | 80 |
| 81 | 81 | 81 |
| 82 | 82 | 82 |
| 83 | 83 | 83 |
| 84 | 84 | 84 |
| 85 | 85 | 85 |
| 86 | 86 | 86 |
| 87 | 87 | 87 |
| 88 | 88 | 88 |
| 89 | 89 | 89 |
| 90 | 90 | 90 |
| 91 | 91 | 91 |
| 92 | 92 | 92 |
| 93 | 93 | 93 |
| 94 | 94 | 94 |
| 95 | 95 | 95 |
| 96 | 96 | 96 |
| 97 | 97 | 97 |
| 98 | 98 | 98 |
| 99 | 99 | 99 |
| 100 | 100 | 100 |

| D | D.1 | beg |
|----|-----|-----|
| 1 | 4 | 3 |
| 7 | 4 | 2 |
| 13 | 4 | 1 |
| 19 | 3 | 5 |
| 25 | 3 | 4 |

| D | D.1 | beg |
|----|-----|-----|
| 1 | 4 | 3 |
| 7 | 4 | 2 |
| 13 | 4 | 1 |
| 19 | 3 | 5 |
| 25 | 3 | 4 |

Geocentric Latitude.

MARCH hath XXXI Days.

| D | M | n | h | f. | l. | h | f. | l. | h | f. | l. | |
|----|---|----|---|----|----|----|----|----|---|----|----|----|
| 1 | 0 | 49 | 1 | 33 | 0 | 45 | 0 | 48 | 0 | 26 | 3 | 40 |
| 13 | 0 | 48 | 1 | 30 | 0 | 47 | 0 | 36 | 0 | 12 | 1 | 25 |
| 25 | 0 | 48 | 1 | 28 | 0 | 48 | 0 | 22 | 0 | 53 | 1 | 7 |

Last Quarter, 1 day, 6 night,
New Moon, 9 day, 1 afternoon
First Quarter 16 day, 9 morn.
Full Moon, 23 day, 1 aftern.
Last Quarter, 31 day, 2 after.

Heliocentric Longitude.

| D | M | n | h | l. | h | f. | l. | h | f. | l. | h | f. | l. | h | f. | l. |
|----|---|----|----|----|----|----|----|----|----|----|----|----|----|---|----|----|
| 1 | 6 | 10 | 13 | 32 | 21 | 47 | 29 | 34 | 1 | 23 | 12 | 21 | 17 | 2 | | |
| 7 | 6 | 14 | 13 | 46 | 22 | 19 | 27 | 11 | 2 | 6 | 44 | 16 | 4 | | | |
| 13 | 6 | 19 | 13 | 59 | 22 | 51 | 5 | 21 | 20 | 42 | 27 | 23 | 16 | | | |
| 19 | 6 | 24 | 14 | 13 | 23 | 23 | 8 | 17 | 0 | 24 | 15 | 40 | | | | |
| 25 | 6 | 28 | 14 | 26 | 23 | 55 | 11 | 15 | 10 | 7 | 2 | 38 | | | | |

| M | W | Festival Days. | Asp. & weath. | D | M | n | h | l. | h | f. | l. | h | f. | l. | h | f. | l. | D | de |
|----|---|----------------|---------------|------|------|---|---|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | T | David | Windy, | 0 | 51 | n | 5 | 7 | 25 | 8 | 14 | 11 | 11 | 42 | 8 | 55 | 18 | 3 | |
| 2 | W | Chad | with | 1 | 54 | 2 | 5 | 7 | 25 | 8 | 15 | 10 | 12 | 42 | 20 | 44 | 20 | 4 | |
| 3 | T | Cl. fast 12.2 | rain, | 2 | 54 | 1 | 5 | 7 | 25 | 9 | 16 | 9 | 13 | 42 | 21 | 37 | 22 | 4 | |
| 4 | F | ♀ set 8.41n | □ ♀ | 3 | 48 | 1 | 5 | 7 | 25 | 9 | 17 | 8 | 14 | 42 | 14 | 38 | 22 | 1 | |
| 5 | S | | bail, & | 4 | 3 | 1 | 5 | 7 | 25 | 10 | 18 | 7 | 15 | 42 | 26 | 53 | 21 | 3 | |
| 6 | B | 4 S. in Lent | fleet. | 5 | 14 | 2 | 5 | 7 | 25 | 10 | 20 | 6 | 16 | 42 | 9 | 26 | 19 | 4 | |
| 7 | M | Perpetua | 8 ♀ ♀ | 5 | 51 | 3 | 5 | 7 | 26 | 10 | 21 | 5 | 17 | 42 | 22 | 19 | 16 | 4 | |
| 8 | T | h fou. 5.4n | | 6 | 22 | 4 | 5 | 7 | 26 | 11 | 22 | 5 | 18 | 42 | 5 | 34 | 12 | 5 | |
| 9 | W | | | D | fets | 4 | 5 | 7 | 26 | 11 | 23 | 4 | 19 | 42 | 19 | 9 | 8 | 2 | |
| 10 | T | ♂ ri. 1. qm | More | 6 | 51 | 5 | 5 | 7 | 27 | 12 | 24 | 3 | 20 | 42 | 3 | 3 | 3 | 1 | |
| 11 | F | Cl. fast 10.1 | ♂ ♀ ♀ | 8 | 9 | 5 | 5 | 7 | 27 | 12 | 26 | 3 | 21 | 41 | 17 | 11 | 2 | n | |
| 12 | S | Gregory M. | * ♀ ♀ | 9 | 20 | 5 | 5 | 7 | 27 | 13 | 27 | 3 | 22 | 41 | 18 | 27 | 7 | 2 | |
| 13 | B | 5 S. in Lent | mild. | 10 | 50 | 4 | 5 | 7 | 27 | 13 | 28 | 3 | 23 | 41 | 15 | 47 | 12 | 1 | |
| 14 | M | h 10.10.47n | ♂ ♀ h | Morn | 4 | 5 | 5 | 7 | 28 | 14 | 29 | D | 24 | 41 | 0 | 11 | 5 | 16 | 3 |
| 15 | T | | | 0 | 9 | 3 | 5 | 8 | 28 | 14 | 8 | 3 | 25 | 40 | 14 | 18 | 19 | 4 | |
| 16 | W | ♀ set 9.23n | Windy, | 1 | 22 | 2 | 5 | 8 | 28 | 15 | 2 | 3 | 26 | 40 | 28 | 25 | 21 | 4 | |
| 17 | T | St. Patrick | * ♀ ♀ | 2 | 31 | n | 5 | 8 | 28 | 15 | 3 | 3 | 27 | 39 | 12 | 24 | 22 | 2 | |
| 18 | F | Ed. K.W.S. | Δ ♀ ♀ | 3 | 29 | 1 | 5 | 8 | 28 | 16 | 4 | 3 | 28 | 39 | 26 | 15 | 21 | 4 | |
| 19 | S | Jof. HVM. | O.T. c | 4 | 14 | 2 | 5 | 8 | 29 | 16 | 5 | 4 | 29 | 38 | 9 | 58 | 19 | 3 | |
| 20 | B | 6 S. in Lent | 8 ♀ ♀ | 4 | 53 | 3 | 5 | 8 | 29 | 16 | 6 | 4 | 0 | 38 | 23 | 32 | 16 | 3 | |
| 21 | M | Benedict. | with | 5 | 22 | 4 | 5 | 8 | 29 | 17 | 8 | 5 | 1 | 37 | 6 | 56 | 12 | 3 | |
| 22 | T | Cl. fast 6.46 | rain or | 5 | 48 | 4 | 4 | 8 | 29 | 17 | 9 | 5 | 2 | 37 | 20 | 10 | 8 | | |
| 23 | W | h set 0.16m | Q ☉ ♀ | D | ris. | 5 | 4 | 8 | 29 | 18 | 10 | 6 | 3 | 36 | 3 | 11 | 3 | 1 | |
| 24 | T | Maundy | fleet. | 7 | 22 | 5 | 4 | 8 | 0 | 18 | 11 | 7 | 4 | 35 | 15 | 58 | 1 | 4 | |
| 25 | F | Good Frid. | L. Day | 8 | 32 | 5 | 4 | 8 | 0 | 19 | 12 | 8 | 5 | 35 | 28 | 31 | 6 | 2 | |
| 26 | S | ♀ set 9.57n | More | 9 | 40 | 5 | 4 | 8 | 0 | 19 | 14 | 8 | 6 | 34 | 10 | 51 | 10 | 4 | |
| 27 | B | Easter day | mild | 10 | 46 | 4 | 4 | 8 | 0 | 19 | 15 | 9 | 7 | 33 | 22 | 57 | 14 | 3 | |
| 28 | M | Easter Mon | * ☉ h | 11 | 50 | 3 | 4 | 9 | 1 | 20 | 16 | 10 | 8 | 32 | 4 | 54 | 17 | 5 | |
| 29 | F | Easter Tues | at the | Morn | 2 | 4 | 9 | 1 | 20 | 17 | 11 | 9 | 3 | 31 | 16 | 44 | 20 | 2 | |
| 30 | W | Easter Wed | end. | 0 | 51 | 1 | 4 | 9 | 1 | 20 | 18 | 12 | 10 | 31 | 28 | 32 | 21 | 5 | |
| 31 | T | | | 1 | 41 | 0 | 4 | 9 | 1 | 21 | 19 | 13 | 11 | 30 | 10 | 24 | 22 | 3 | |

| D | D. L. | Sun | Sun | D. L. | leng. | Day | Declination. | | | | | | | | | | | |
|----|-------|------|------|-------|-------|------|--------------|----|----|----|----|----|----|----|------|-----|----|---|
| | beg. | rife | set. | ends | of D. | inc. | ⊙ f. | ⊙ | h | n | h | n | h | f. | ♂ f. | ♀ n | ♂ | |
| 1 | 4 36 | 631 | 529 | 7 24 | 1058 | 3 8 | 7 11 | 10 | 8 | 20 | 1 | 13 | 54 | 20 | 53 | 5 | 9 | 3 |
| 7 | 4 25 | 620 | 540 | 7 35 | 1120 | 3 30 | 4 52 | 10 | 13 | 20 | 5 | 13 | 26 | 21 | 25 | 8 | 12 | 6 |
| 13 | 4 13 | 6 8 | 552 | 7 47 | 1144 | 3 54 | 2 31 | 10 | 18 | 20 | 10 | 12 | 59 | 21 | 53 | 11 | 9 | 9 |
| 19 | 3 59 | 555 | 6 5 | 8 1 | 1210 | 4 20 | 0 9 | 10 | 23 | 20 | 15 | 12 | 31 | 22 | 17 | 13 | 57 | 9 |
| 25 | 3 47 | 543 | 617 | 8 13 | 1234 | 4 44 | 2 13 | 10 | 28 | 20 | 21 | 12 | 4 | 22 | 39 | 16 | 33 | 9 |

APRIL hath XXX Days.

| D | M | d | 1. | 41. | ♂ | n | ♀ | n | ♂ | |
|----|----|---|----|-----|---|----|----|----|----|----|
| 0 | 48 | 1 | 26 | 49 | 0 | 11 | 17 | 2 | 2 | |
| 13 | 48 | 1 | 24 | 51 | 0 | 10 | 15 | 2 | 36 | |
| 25 | 47 | 1 | 22 | 54 | 0 | 38 | 12 | 27 | 1 | 54 |

New Moon 8 day, midnight
First Quart. 14 day, 4 after.
Full Moon 22 day, 3 morn.
Last Quart. 30 day, 8 morn.

| Heliocentric Longitude. | | | | | | | | | | | | | | | |
|-------------------------|---|----|----|----|----|----|----|----|----|----|----|----|----|----|---|
| D | M | m | h | II | U | ☿ | ♈ | ♀ | ♋ | ♊ | ♏ | | | | |
| 1 | 5 | 34 | 14 | 42 | 24 | 32 | 14 | 44 | 21 | 28 | 31 | 54 | 15 | 46 | |
| 7 | 5 | 38 | 14 | 55 | 25 | 4 | 17 | 45 | 1R | 12 | 8 | W | 47 | 15 | 8 |
| 13 | 5 | 43 | 15 | 9 | 25 | 37 | 20 | 48 | 10 | 57 | 26 | 52 | 14 | 29 | |
| 19 | 6 | 47 | 15 | 22 | 26 | 9 | 23 | 53 | 20 | 43 | 17 | ∞ | 5 | | |
| 25 | 6 | 52 | 15 | 35 | 26 | 41 | 27 | 0 | 0R | 28 | 10 | X | 33 | | |

| M | W | Festival | Alp & | D | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | Dec |
|----|---|-----------------|----------|--------|------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------|-----|
| D | D | days. | weath. | rises. | L | II | X | f | 8 | X | Y | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | fouth | |
| 1 | F | All Fools d. | Q ♂ ♀ | 2 | 39 | f | 4 | 9 | 1 | 21 | 21 | 15 | 12 | 29 | 22 | 24 | 22 | 11 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 2 | S | ♀ fet 10. 24n | Mild at | 3 | 24 | 2 | 4 | 9 | 2 | 22 | 22 | 16 | 13 | 28 | 4 | 39 | 20 | 43 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 3 | B | 1 S. aft. East. | the be- | 4 | 30 | 3 | 4 | 9 | 2 | 22 | 23 | 17 | 14 | 27 | 17 | 13 | 18 | 13 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 4 | M | St. Ambrose | ♂ D 24 | 4 | 57 | 4 | 4 | 9 | 2 | 22 | 24 | 18 | 15 | 26 | 0 | X | 11 | 14 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 5 | T | ♂ rifo. 31m | ginning | 5 | 22 | 4 | 4 | 9 | 2 | 23 | 25 | 19 | 16 | 25 | 13 | 34 | 10 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 6 | W | Ox. & Cat. b | with | 5 | 44 | 5 | 4 | 9 | 3 | 23 | 26 | 21 | 17 | 24 | 27 | 23 | 5 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 7 | T | clo. fa. 1 55 | cooling | D | fets | 5 | 4 | 9 | 3 | 23 | 28 | 22 | 18 | 23 | 11 | 36 | on | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 8 | F | ♀ fet 10. 40n | showers | 7 | 15 | 5 | 4 | 10 | 3 | 24 | 29 | 23 | 19 | 21 | 26 | 8 | 5 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 9 | S | | | 8 | 37 | 5 | 4 | 10 | 3 | 24 | 11 | 25 | 20 | 20 | 10 | 8 | 5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 10 | B | 2 S. aft. East. | ♂ D ♀ | 10 | 1 | 4 | 4 | 10 | 3 | 24 | 1 | 26 | 21 | 19 | 25 | 36 | 15 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 11 | M | 1 return | [□ ♀ ♀ | 11 | 20 | 3 | 4 | 10 | 4 | 25 | 2 | 28 | 22 | 18 | 10 | 11 | 19 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 12 | T | | □ ♀ ♀ | Morn | 2 | 4 | 10 | 4 | 25 | 3 | 29 | 23 | 16 | 24 | 48 | 21 | 4 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 13 | W | Easter Te. b. | 8 ♀ ♀ | 0 | 33 | n | 4 | 10 | 4 | 25 | 4 | 26 | 24 | 15 | 9 | 5 | 4 | 22 | 4 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 14 | T | cl. with fun | | 1 | 35 | 1 | 4 | 10 | 4 | 26 | 6 | 2 | 25 | 14 | 23 | 5 | 22 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 15 | F | h. f. 10. 53n | Q ♀ ♀ | 2 | 25 | 2 | 4 | 10 | 4 | 26 | 7 | 4 | 26 | 12 | 6 | 50 | 20 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 16 | S | | of rain. | 3 | 43 | 4 | 10 | 4 | 26 | 8 | 6 | 27 | 11 | 20 | 20 | 17 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 17 | B | 3 S. aft. East. | | 3 | 36 | 4 | 4 | 10 | 5 | 26 | 9 | 7 | 28 | 10 | 3 | 36 | 13 | 4 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 18 | M | 2 return | ♂ h ♀ | 4 | 2 | 4 | 4 | 11 | 5 | 27 | 10 | 9 | 29 | 8 | 16 | 40 | 9 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 19 | T | Alphege | | 4 | 25 | 5 | 4 | 11 | 5 | 27 | 11 | 11 | 0 | 8 | 6 | 29 | 32 | 4 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 20 | W | | * ♀ ♀ | 4 | 46 | 5 | 4 | 11 | 5 | 27 | 12 | 12 | 1 | 5 | 12 | 13 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 21 | T | h. f. 10. 35n | | 5 | 4 | 5 | 4 | 11 | 5 | 27 | 14 | 14 | 2 | 3 | 24 | 43 | 5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 22 | F | ♀ f. 11. 22n | | D | rif. | 5 | 4 | 11 | 6 | 28 | 15 | 16 | 3 | 2 | 7 | m | 3 | 9 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 23 | S | St. George | □ ○ ♀ | 8 | 41 | 4 | 4 | 11 | 6 | 28 | 16 | 18 | 4 | 0 | 19 | 12 | 13 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 24 | B | 4 S. aft. East. | [△ ○ ♀ | 9 | 50 | 3 | 4 | 11 | 6 | 28 | 17 | 19 | 4 | 58 | 1 | 12 | 17 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 25 | M | St. M. P. M. | * ○ ♀ | 10 | 52 | 3 | 4 | 11 | 6 | 28 | 18 | 21 | 5 | 56 | 13 | 4 | 19 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 26 | T | [3 return | ♂ h ♀ | 11 | 47 | 2 | 4 | 11 | 6 | 2 | 19 | 23 | 6 | 55 | 24 | 53 | 21 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 27 | W | | Plea- | Morn | 1 | 4 | 12 | 6 | 29 | 20 | 25 | 7 | 53 | 6 | 54 | 0 | 22 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 28 | T | clo. fl. 2. 49 | fant to | 0 | 41 | f | 4 | 12 | 7 | 29 | 21 | 27 | 8 | 51 | 18 | 32 | 22 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 29 | F | | cheend. | 1 | 26 | 2 | 4 | 12 | 7 | 29 | 23 | 29 | 9 | 49 | 0 | 31 | 21 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 30 | S | | | 2 | 6 | 3 | 4 | 12 | 7 | 29 | 24 | 8 | 10 | 47 | 12 | 45 | 19 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |

| D | D. L. | | | | eng. of D. | Day inc. | Declination. | | | | | | | | | | | | |
|-----|-------|--------------|--------------|------|---------------|-------------|--------------|----|----|----|----|----|----|----|----|----|----|---|---|
| | beg. | Sul. rife | Sun. fet. | ends | | | ☉ | n | W | n | h | n | f. | ♂ | f. | ♀ | n | ♂ | |
| 13 | 29 | 52 | 63 | 8 31 | 13 2 | 5 12 | 4 56 | 10 | 34 | 20 | 28 | 11 | 33 | 23 | 1 | 19 | 17 | 7 | 1 |
| 73 | 14 | 51 | 64 | 8 46 | 13 24 | 5 34 | 7 13 | 10 | 37 | 20 | 34 | 11 | 7 | 23 | 18 | 21 | 19 | 5 | 1 |
| 132 | 57 | 5 | 65 | 9 3 | 13 4 | 5 58 | 9 35 | 10 | 40 | 20 | 40 | 10 | 42 | 23 | 34 | 23 | 2 | 1 | 1 |
| 192 | 39 | 45 | 7 | 9 21 | 14 10 | 5 20 | 11 31 | 10 | 43 | 20 | 46 | 10 | 18 | 23 | 50 | 24 | 24 | 2 | 1 |
| 252 | 21 | 44 | 17 | 9 30 | 14 32 | 5 42 | 13 31 | 10 | 46 | 20 | 53 | 9 | 55 | 24 | 6 | 25 | 24 | 6 | 1 |

Geocentric Latitude.

MAY hath XXXI Days.

Heliocentric Longitude.

| D | W | h | f | 4 | 1 | 5 | n | 5 | f | D | W | h | f | 4 | 1 | 5 | n | 5 | f |
|----|----|----|----|----|----|----|----|----|----|----|---|----|---|---|---|---|---|---|---|
| 10 | 47 | 1 | 21 | 0 | 55 | 0 | 55 | 2 | 39 | 1 | 7 | | | | | | | | |
| 13 | 0 | 47 | 1 | 19 | 0 | 58 | 1 | 33 | 2 | 52 | 1 | 55 | | | | | | | |
| 25 | 0 | 46 | 1 | 18 | 1 | 1 | 2 | 18 | 2 | 47 | 2 | 9 | | | | | | | |

New Moon 7 day, 9 morn.
 First Quart. 13 day, midni.
 Full Moon, 21 day, 7 after.
 Last Quart. 29 day, 10 nig.

| D | W | Festival | Alp. & weath. | D | W | h | f | 4 | 1 | 5 | n | 5 | f | D | W | h | f | 4 | 1 | 5 | n | 5 | f |
|----|--------|----------|-------------------|----------|------|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| D | D | Days. | | riles. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 22 | 11 | 1 | B 5. alt. East. | Δ 8 5 | 2 | 3 | 6 | 1 | 4 | 12 | 7 | 29 | 25 | 3 | 11 | 46 | 25 | 17 | 16 | 21 | | | |
| 20 | 43 | 2 | M [St. Ph. & Jas] | δ D 4 | 3 | 3 | 4 | 1 | 4 | 12 | 7 | 29 | 26 | 5 | 12 | 44 | 8 | 13 | 12 | 23 | | | |
| 18 | 12 | 3 | T 4 return | ✠ 4 5 | 3 | 2 | 5 | 1 | 4 | 12 | 7 | 27 | 7 | 13 | 42 | 21 | 36 | 7 | 42 | | | | |
| 14 | 44 | 4 | W 5 set 11.43n | Show- | 3 | 5 | 1 | 5 | 4 | 12 | 8 | 0 | 28 | 9 | 14 | 40 | 5 | 28 | 2 | 28 | | | |
| 10 | 24 | 5 | T A. d. H. Th. | □ δ 5 | 4 | 1 | 4 | 5 | 4 | 13 | 8 | 0 | 29 | 11 | 15 | 38 | 19 | 47 | 3 | n | 4 | | |
| 5 | 25 | 6 | F John Evan. | ers and | 5 | 4 | 13 | 8 | 0 | 29 | 14 | 16 | 36 | 4 | 8 | 30 | 8 | 35 | | | | | |
| On | 0 | 7 | S Duts. Yorkb | δ ○ 5 | 7 | 4 | 0 | 4 | 3 | 13 | 8 | 0 | 1 | 16 | 17 | 34 | 19 | 28 | 13 | 42 | | | |
| 5 | 31 | 8 | B 1 S. af. Af. d. | brisk | 9 | 1 | 3 | 3 | 13 | 8 | 0 | 2 | 18 | 18 | 32 | 4 | 33 | 18 | 0 | | | | |
| 10 | 49 | 9 | M Easter T. en | * 8 5 | 10 | 2 | 0 | 2 | 3 | 13 | 8 | 0 | 3 | 20 | 19 | 30 | 19 | 35 | 21 | 6 | | | |
| 15 | 30 | 10 | T 5 set 11.50n | δ D 5 | 11 | 3 | 1 | 1 | D | 13 | 9 | 0 | 4 | 22 | 20 | 28 | 4 | 21 | 22 | 43 | | | |
| 19 | 12 | 11 | W 4 ris. 2.6m | gales of | Morn | 3 | 13 | 9 | 0 | 5 | 24 | 21 | 25 | 13 | 59 | 22 | 45 | | | | | | |
| 21 | 40 | 12 | T Oxf. T. ends | wind; | 0 | 2 | 6 | 1 | 3 | 13 | 9 | R | 6 | 27 | 22 | 23 | 3 | 12 | 21 | 17 | | | |
| 22 | 41 | 13 | F 5 ri. 10.53n | | 1 | 1 | 1 | 2 | 3 | 14 | 9 | 0 | 8 | 29 | 23 | 21 | 17 | 2 | 18 | 34 | | | |
| 22 | 14 | 14 | S Clo. fl. 3.56 | Δ 4 5 | 1 | 4 | 5 | 3 | 4 | 14 | 9 | 0 | 9 | 11 | 24 | 19 | 0 | 31 | 14 | 55 | | | |
| 20 | 27 | 15 | B Whit Sund. | □ 8 5 | 2 | 1 | 1 | 4 | 4 | 14 | 9 | 0 | 10 | 3 | 25 | 17 | 13 | 41 | 10 | 30 | | | |
| 17 | 30 | 16 | M Whit Mon. | Show- | 2 | 3 | 5 | 5 | 4 | 14 | 9 | 0 | 11 | 5 | 26 | 14 | 26 | 34 | 5 | 55 | | | |
| 5 | 13 | 47 | T Whit Tues. | ers and | 2 | 5 | 5 | 5 | 4 | 14 | 10 | 0 | 12 | 7 | 27 | 12 | 2 | 12 | 4 | | | | |
| 0 | 9 | 28 | W Prs. Wal. b | perhaps | 3 | 1 | 5 | 5 | 4 | 14 | 10 | 0 | 13 | 9 | 28 | 10 | 21 | 38 | 3 | 45 | | | |
| 2 | 4 | 39 | T Qu. Char. b. | Dunst. | 3 | 3 | 5 | 5 | 4 | 14 | 10 | 0 | 14 | 11 | 29 | 7 | 3 | 53 | 8 | 21 | | | |
| 3 | of. 10 | 17 | F 5 T. 11.43r | Q ○ 5 | 3 | 5 | 2 | 5 | 4 | 14 | 10 | 0 | 15 | 13 | 0 | 11 | 16 | 0 | 12 | 35 | | | |
| 3 | 5 | 0 | S C. T. d. m. | D rif. 4 | 4 | 1 | 5 | 10 | 0 | 16 | 15 | 1 | 3 | 27 | 50 | 16 | 10 | | | | | | |
| 3 | 9 | 38 | T Trinity Su. | Prs. Eb | 8 | 4 | 2 | 4 | 4 | 15 | 10 | 0 | 17 | 17 | 2 | 0 | 9 | 15 | 19 | 17 | | | |
| 2 | 13 | 35 | M 1 return | δ D 5 | 9 | 4 | 2 | 3 | 4 | 15 | 10 | 0 | 18 | 19 | 2 | 58 | 21 | 41 | 21 | 28 | | | |
| 2 | 17 | 24 | T 5 ri. 10.10n | | 10 | 3 | 6 | 2 | 4 | 15 | 10 | 29 | 19 | 21 | 3 | 55 | 3 | 20 | 22 | 48 | | | |
| 4 | 19 | 55 | W Ox. T. beg. | thun- | 11 | 2 | 4 | 1 | 4 | 15 | 10 | 29 | 20 | 23 | 4 | 53 | 15 | 18 | 22 | 58 | | | |
| 3 | 21 | 47 | T Augustin | der | Morn | 4 | 15 | 11 | 29 | 21 | 24 | 5 | 50 | 27 | 11 | 22 | 10 | | | | | | |
| 10 | 22 | 4 | F Trin. T. b. | toward | 0 | 5 | 1 | 4 | 15 | 11 | 29 | 22 | 26 | 6 | 48 | 9 | 13 | 20 | 20 | | | | |
| 2 | 22 | 4 | S [Ven. Bede | the end. | 0 | 3 | 2 | 2 | 4 | 15 | 11 | 29 | 23 | 28 | 7 | 45 | 21 | 28 | 17 | 34 | | | |
| 31 | 21 | 3 | B 1 S. aft. Tr | 8 δ 5 | 1 | 8 | 3 | 4 | 16 | 11 | 29 | 23 | 29 | 8 | 43 | 3 | 59 | 13 | 56 | | | | |
| 45 | 19 | 2 | M 2 return | | 1 | 3 | 2 | 4 | 4 | 16 | 11 | 28 | 24 | 9 | 40 | 16 | 52 | 9 | 34 | | | | |
| | | | T Clo. fl. 2.30 | □ ○ 4 | 1 | 5 | 2 | 5 | 4 | 16 | 11 | 28 | 25 | 2 | 10 | 38 | 0 | 11 | 4 | 38 | | | |

| | | D. L. | Sun | Sun | D. L. | eng. | Day | Declination. | | | | | | | | | | | | | | | |
|---|----|-------|------|------|-------|-------|-------|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|
| | | beg. | rife | set. | ends | of D. | inc. | ⊙ | n | 8 | n | h | n | 4 | f. | ♂ | f. | ♀ | n | 8 | u | | |
| 9 | 17 | 7 4 | 2 0 | 433 | 7 27 | 10 0 | 14 54 | 7 4 | 15 | 23 | 17 | 47 | 20 | 59 | 9 | 34 | 24 | 23 | 26 | 1 | 11 | 40 | |
| 1 | 19 | 5 1 | 1 50 | 423 | 7 37 | 10 10 | 15 14 | 7 24 | 17 | 5 | 10 | 47 | 21 | 6 | 9 | 14 | 24 | 41 | 26 | 15 | 16 | 36 | |
| 3 | 2 | 1 8 | 1 11 | 414 | 7 46 | 10 49 | 15 32 | 7 42 | 18 | 38 | 10 | 47 | 21 | 12 | 8 | 55 | 25 | 1 | 26 | 5 | 20 | 55 | |
| 4 | 24 | 2 0 | 0 38 | 4 5 | 7 55 | 11 22 | 15 50 | 8 0 | 19 | 59 | 10 | 46 | 21 | 18 | 8 | 39 | 25 | 23 | 25 | 31 | 23 | 57 | |
| 5 | 24 | 6 4 | all | 35 | 8 2 | Dav | 16 4 | 14 | 21 | 8 | 10 | 44 | 21 | 23 | 8 | 24 | 25 | 46 | 24 | 42 | 25 | 17 | |

Geocentric Latitude.

JUNE hath XXX Days.

| D | W | n | h | l | u | l | q | n | q | n | | |
|----|---|----|---|----|---|----|---|----|----|----|---|----|
| 1 | o | 46 | 1 | 17 | 1 | 3 | 2 | 46 | 2 | 33 | 2 | 3 |
| 13 | o | 45 | 1 | 17 | 1 | 6 | 3 | 32 | 1 | 50 | o | 26 |
| 25 | o | 45 | 1 | 16 | 1 | 10 | 4 | 80 | 33 | 2 | f | 32 |

Heliocentric Longitude.

| D | 男 | 吸 | h | II | 4 | 兴 | ♂ | ♀ | ♀ | 川 | ♀ | 吸 | ♂ | ♀ |
|----|---|----|----|----|---|----|----|----|----|----|----|----|----|----|
| 1 | 7 | 21 | 16 | 58 | 0 | 0 | 16 | 56 | 0 | 20 | 29 | 11 | 12 | 3 |
| 7 | 7 | 26 | 17 | 12 | 0 | 32 | 20 | 17 | 9 | 58 | 20 | 55 | 11 | 8 |
| 13 | 7 | 30 | 17 | 25 | 1 | 4 | 23 | 40 | 19 | 33 | 9 | 45 | 11 | 1 |
| 19 | 7 | 35 | 17 | 39 | 1 | 36 | 27 | 6 | 29 | 7 | 27 | 9 | | |
| 25 | 7 | 40 | 17 | 52 | 2 | 9 | 0 | 32 | 8 | 7 | 40 | 13 | 7 | 44 |

New Moon 5 day, 4 after.
 First Quart. 12 day, 10 morn
 Full Moon 20 day, 10 morn
 Last Quart. 23 day, 8 morn

| M | W | Festival Days. | Asp. & weath. | D | W | n | h | l | u | l | q | n | q | n | o | n | D | D |
|----|---|-----------------|---------------|--------|----|---|----|----|----|----|----|----|----|-----|----|----|----|-------|
| D | D | | | rises. | 1 | W | h | l | u | l | q | n | q | n | o | n | Y | North |
| 1 | W | Nicomede | * W 5 | 2 14 | 1 | 4 | 16 | 11 | 28 | 26 | 4 | 11 | 35 | 13 | 57 | o | 4 | |
| 2 | T | ♀ feti. 1.33n | Q 5 ♀ | 2 37 | 5 | 4 | 16 | 11 | 28 | 27 | 5 | 12 | 33 | 28 | 11 | 6 | | |
| 3 | F | | Show. | 3 1 | 4 | 4 | 16 | 11 | 27 | 28 | 6 | 13 | 30 | 12 | 8 | 50 | 11 | |
| 4 | S | K. G. III. b. | Bonif. | 3 38 | 4 | 4 | 16 | 11 | 27 | 29 | 8 | 14 | 28 | 27 | 4 | 16 | | |
| 5 | B | 2 S. aft. T. | ♂ D h | D fets | 2 | 4 | 16 | 12 | 27 | 30 | 9 | 15 | 25 | 12 | 11 | 50 | 19 | |
| 6 | M | 3 return | ♂ O h | 9a | 8 | 1 | 4 | 17 | 12 | 27 | 1 | 10 | 16 | 22 | 28 | 12 | 22 | |
| 7 | T | ♂ ri. 9. 6 n | Δ 4 ♀ | 10 8 | n | 4 | 17 | 12 | 26 | 2 | 11 | 17 | 20 | 13 | 50 | 16 | 23 | |
| 8 | W | 4 rif. o. 19m | ♂ D ♀ | 11 3 | 2 | 4 | 17 | 12 | 26 | 3 | 12 | 18 | 17 | 28 | 4 | 22 | | |
| 9 | T | ♀ feti. 1. 17n | ers and | 11 42 | 3 | 4 | 17 | 12 | 26 | 3 | 13 | 19 | 14 | 12 | 31 | 19 | | |
| 10 | F | | thun- | Morn | 1 | 4 | 17 | 12 | 26 | 4 | 14 | 20 | 12 | 26 | 32 | 16 | | |
| 11 | S | St. Barnabas | der. | o 12 | 5 | 4 | 17 | 12 | 25 | 5 | 15 | 21 | 9 | 10m | 8 | 11 | | |
| 12 | B | 3 S. aft. T. | | o 37 | 5 | 4 | 17 | 12 | 25 | 6 | 16 | 22 | 6 | 23 | 20 | 7 | | |
| 13 | M | 4 return | More | o 57 | 5 | 4 | 18 | 12 | 25 | 7 | 16 | 23 | 4 | 6 | 11 | 2 | | |
| 14 | T | Cl. with sun | mild | 1 18 | 5 | 4 | 18 | 12 | 24 | 7 | 17 | 24 | 1 | 18 | 43 | 26 | | |
| 15 | W | Tr. T. ends | plea- | 1 36 | 5 | 4 | 18 | 12 | 24 | 8 | 18 | 24 | 58 | 1m | o | 7 | | |
| 16 | T | ♀ feti. 10. 53n | fant | 1 55 | 4 | 4 | 18 | 12 | 24 | 9 | 18 | 25 | 55 | 13 | 6 | 11 | | |
| 17 | F | St. Alban | | 2 16 | 4 | 4 | 18 | 12 | 23 | 10 | 19 | 26 | 53 | 25 | 4 | 15 | | |
| 18 | S | | showers | 2 47 | 3 | 4 | 18 | 12 | 23 | 10 | 19 | 27 | 50 | 6 | 7 | 50 | 18 | |
| 19 | B | 4 S. aft. T. | ♂ D ♂ | 3 8 | 2 | 4 | 18 | 12 | 23 | 11 | 19 | 28 | 47 | 18 | 45 | 21 | | |
| 20 | M | Tr. K. W. S. | Q 4 ♀ | D rif. | 1 | 4 | 18 | 12 | 22 | 12 | 20 | 29 | 44 | o | 33 | 22 | | |
| 21 | T | 4 ri. 11. 27n | | 9a | 19 | 4 | 19 | 12 | 22 | 12 | 20 | o | 41 | 12 | 23 | 23 | | |
| 22 | W | | and to | 10 2 | 1 | 4 | 19 | 12 | 22 | 13 | 20 | 1 | 39 | 24 | 17 | 22 | | |
| 23 | T | ♀ feti. 10. 32n | wards | 10 35 | 2 | 4 | 19 | 13 | 21 | 14 | R | 2 | 36 | 6 | 17 | 20 | | |
| 24 | F | St. J. Ba. Mid | S. Day | 11 43 | 3 | 4 | 19 | 13 | 21 | 14 | 20 | 3 | 33 | 18 | 26 | 18 | | |
| 25 | S | ♂ ri. 7. 34 n | * O W | 11 31 | 4 | 4 | 19 | 13 | 21 | 15 | 20 | 4 | 30 | o | 47 | 15 | | |
| 26 | B | 5 S. aft. T. | ♂ D 4 | 11 52 | 3 | 4 | 19 | 13 | 20 | 16 | 20 | 5 | 27 | 13 | 24 | 10 | | |
| 27 | M | Clo. fall 2 4 | the end | Morn | 5 | 4 | 19 | 13 | 20 | 16 | 19 | 6 | 25 | 26 | 18 | 6 | | |
| 28 | T | | thun- | o 13 | 5 | 5 | 19 | 13 | 20 | 17 | 19 | 7 | 22 | 9 | 34 | 1 | | |
| 29 | W | St. Peter | ♂ h ♂ | o 34 | 5 | 5 | 20 | 13 | 20 | 17 | 19 | 8 | 19 | 23 | 13 | 4 | | |
| 30 | T | Buck h. b. | der and | o 57 | 5 | 5 | 20 | 13 | 19 | 18 | 18 | 9 | 16 | 7 | 8 | 10 | 9 | |
| | | Dog days b. | rain. | | | | | | | | | | | | | | | |

| D | D. L. | Sun beg. | Sun rise | Sun set. | D. L. | eng. of D. | Day inc. | Declination. | D. L. |
|----|-------|----------|----------|----------|-------|------------|----------|--------------|-------|
| | | | | | | | | o. n | beg. |
| 1 | | | 350 | 8 10 | | 16 20 | 8 30 | 22 12 | 10 41 |
| 7 | | | 345 | 8 15 | | 16 30 | 8 40 | 22 52 | 10 38 |
| 13 | all | | 343 | 8 17 | Day | 16 34 | 3 44 | 23 17 | 10 34 |
| 19 | | | 341 | 8 19 | | 16 38 | 8 48 | 23 28 | 10 36 |
| 25 | | | 341 | 8 19 | | 16 38 | 8 48 | 23 23 | 10 25 |

JULY hath XXXI Days.

| JULY hath XXXI. Days. | | | | | | | | | | | | | | | |
|---------------------------------|----|------|------|------|----|------|----|-------|----|------|----|--------------|----|----|----|
| Heliocentric Longitude. | | | | | | | | | | | | | | | |
| D | | M | | h | | n | | f | | s | | v | | w | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 17 | 45 | 18 | 62 | 41 | 4 | 2 | 18 | 12 | 0 | 20 | 10 | 57 | | | |
| 77 | 50 | 18 | 19 | 3 | 13 | 7 | 34 | 27 | 42 | 17 | 44 | 10 | 18 | | |
| 137 | 55 | 18 | 33 | 3 | 45 | 11 | 77 | 0 | 12 | 6 | 45 | 9 | 40 | | |
| 198 | 0 | 18 | 46 | 4 | 18 | 14 | 42 | 16 | 41 | 28 | 28 | | | | |
| 258 | 4 | 19 | 04 | 50 | 18 | 19 | 26 | 10 | 24 | 7 | | | | | |
| D. L. Sur. Sun. D. L. leng. Day | | | | | | | | | | | | | | | |
| beg. | | rise | | set. | | ends | | of D. | | dec. | | Declination. | | | |
| all | | 344 | 316 | | | 1632 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 348 | 312 | Day | | 1624 | 0 | 14 | 23 | 4 | 10 | 20 | 21 | 51 | 7 |
| | | 354 | 3 | | | 1612 | 0 | 26 | 22 | 31 | 10 | 15 | 21 | 56 | 7 |
| | | 4 | 1759 | | | 1558 | 0 | 40 | 21 | 43 | 10 | 9 | 21 | 58 | 7 |
| | | 514 | 8752 | | | 1544 | 0 | 54 | 20 | 42 | 10 | 0 | 22 | 0 | 8 |
| | | | | | | | | | | | | | | | |
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Geocentric Latitude.

AUGUST hath XXXI Days.

| D | h | l | δ | l | δ | l | δ |
|----|---|----|---|----|---|----|---|
| 1 | 0 | 44 | 1 | 16 | 1 | 20 | 4 |
| 13 | 0 | 44 | 1 | 16 | 1 | 23 | 4 |
| 25 | 0 | 44 | 1 | 16 | 1 | 25 | 3 |

Heliocentric Longitude.

| D | h | l | δ | l | δ | l | δ |
|----|----|----|----|----|---|----|----|
| 1 | 18 | 9 | 19 | 15 | 5 | 28 | 22 |
| 7 | 8 | 13 | 19 | 29 | 6 | 1 | 26 |
| 13 | 8 | 18 | 19 | 43 | 6 | 33 | 29 |
| 19 | 8 | 23 | 19 | 56 | 7 | 6 | 33 |
| 25 | 8 | 28 | 20 | 9 | 7 | 38 | 7 |

New Moon 3 day, 7 morn.
 First Quart. 10 day, noon
 Full Moon 18 day, 3 aftern.
 Last Quar. 25 day, 10 night

| M | W | Festival Days. | Aip. & weath. | D | h | l | δ | l | δ | l | δ | l | δ | l | δ | l | δ | l | δ |
|----|---|-----------------|---------------|----|----|---|---|----|----|----|----|----|----|----|----|----|----|----|---|
| 1 | M | Lammas | δ D 8 | 1 | 57 | n | 6 | 23 | 11 | 18 | 16 | 21 | 9 | 49 | 15 | 18 | 23 | | |
| 2 | T | δ so. 8. 14n | Q ⊙ 4 | 2 | 57 | n | 6 | 24 | 11 | 18 | 15 | 22 | 10 | 47 | 0 | Ω | 7 | 21 | |
| 3 | W | | δ D 9 | 3 | 57 | n | 6 | 24 | 11 | 18 | 15 | 24 | 11 | 44 | 14 | 51 | 19 | | |
| 4 | T | 4 rif. 8. 29n | Show- | 4 | 57 | n | 6 | 24 | 11 | 18 | 14 | 26 | 12 | 42 | 29 | 21 | 15 | | |
| 5 | F | | δ ⊙ 9 | 5 | 57 | n | 6 | 24 | 11 | 18 | 13 | 27 | 13 | 39 | 13 | 31 | 10 | | |
| 6 | S | Tr. of GOD then | | 6 | 57 | n | 7 | 24 | 11 | 19 | 13 | 29 | 14 | 37 | 27 | 17 | 5 | | |
| 7 | E | 11 S. aft. T. | name | 7 | 57 | n | 7 | 24 | 11 | 19 | 12 | Ω | 15 | 35 | 10 | 38 | 0 | | |
| 8 | M | Cl. fast 5. 10 | of Jef. | 8 | 57 | n | 7 | 24 | 10 | 19 | 11 | 3 | 16 | 32 | 23 | 34 | 4 | | |
| 9 | T | | ers and | 9 | 57 | n | 7 | 24 | 10 | 19 | 12 | 5 | 17 | 30 | 6 | 8 | 9 | | |
| 10 | W | St. Lawren. | Q 4 9 | 10 | 43 | a | 7 | 24 | 10 | 20 | 10 | 6 | 18 | 27 | 18 | 23 | 13 | | |
| 11 | T | Prs. Brun. b. | δ 9 8 | 11 | 39 | 2 | 7 | 24 | 10 | 20 | 10 | 8 | 19 | 25 | 0 | 25 | 17 | | |
| 12 | F | Pl. Wales b. | δ D 8 | 12 | 39 | 2 | 7 | 24 | 10 | 20 | 9 | 10 | 20 | 23 | 12 | 17 | 19 | | |
| 13 | S | 4 rif. 7. 52n | thun- | 13 | 39 | 2 | 7 | 25 | 10 | 21 | 9 | 12 | 21 | 20 | 24 | 5 | 21 | | |
| 14 | B | 12 S. aft. T. | der. | 14 | 39 | 2 | 7 | 25 | 10 | 21 | 8 | 14 | 22 | 18 | 5 | 54 | 22 | | |
| 15 | M | Af. B. V. M. | witha- | 15 | 39 | 2 | 7 | 25 | 10 | 21 | 8 | 16 | 23 | 16 | 17 | 4 | 22 | | |
| 16 | T | D. York bo. | wea- | 16 | 39 | 2 | 7 | 25 | 9 | 21 | 7 | 18 | 24 | 13 | 29 | 50 | 21 | | |
| 17 | W | | Δ 9 8 | 17 | 39 | 2 | 7 | 25 | 9 | 22 | 7 | 20 | 25 | 11 | 12 | 4 | 19 | | |
| 18 | T | Cl. fast 3. 21 | [* ⊙ 8 | 18 | 39 | 2 | 7 | 25 | 9 | 22 | 7 | 22 | 26 | 9 | 24 | 31 | 16 | | |
| 19 | F | δ so. 7. 31n | δ D 4 | 19 | 39 | 2 | 7 | 25 | 9 | 22 | 6 | 24 | 27 | 7 | 7 | 11 | 12 | | |
| 20 | S | 9 ri. 3. 19m | [* h 7 | 20 | 39 | 2 | 7 | 25 | 9 | 23 | 6 | 26 | 28 | 4 | 20 | 6 | 8 | | |
| 21 | B | 13 S. aft. T. | δ ⊙ 8 | 21 | 39 | 2 | 7 | 25 | 9 | 23 | 6 | 28 | 29 | 2 | 3 | 14 | 3 | | |
| 22 | M | [D. Clar. b. | ther. | 22 | 39 | 2 | 7 | 25 | 9 | 24 | 6 | 28 | 29 | 2 | 3 | 14 | 3 | | |
| 23 | T | | toward | 23 | 39 | 2 | 7 | 25 | 9 | 24 | 5 | 2 | 0 | 58 | 0 | 8 | 7 | | |
| 24 | W | St. Barthol. | the end. | 24 | 39 | 2 | 7 | 25 | 9 | 24 | 5 | 2 | 0 | 58 | 0 | 8 | 7 | | |
| 25 | T | 4 rif. 7. 5n | Thun- | 25 | 39 | 2 | 7 | 25 | 9 | 24 | 5 | 2 | 0 | 58 | 0 | 8 | 7 | | |
| 26 | F | 9 ri. 2. 49n | der and | 26 | 39 | 2 | 7 | 25 | 9 | 24 | 5 | 2 | 0 | 58 | 0 | 8 | 7 | | |
| 27 | S | | δ h 8 | 27 | 39 | 2 | 7 | 25 | 9 | 24 | 5 | 2 | 0 | 58 | 0 | 8 | 7 | | |
| 28 | B | 14 S. aft. T. | 8 h 8 | 28 | 39 | 2 | 7 | 25 | 9 | 24 | 5 | 2 | 0 | 58 | 0 | 8 | 7 | | |
| 29 | M | St. John beh | rain. | 29 | 39 | 2 | 7 | 25 | 9 | 24 | 5 | 2 | 0 | 58 | 0 | 8 | 7 | | |
| 30 | T | Cl. with sun | δ ⊙ 8 | 30 | 39 | 2 | 7 | 25 | 9 | 24 | 5 | 2 | 0 | 58 | 0 | 8 | 7 | | |
| 31 | W | | [8 ⊙ 4 | 31 | 39 | 2 | 7 | 25 | 9 | 24 | 5 | 2 | 0 | 58 | 0 | 8 | 7 | | |

| D | D. L. | Sun beg. | Sun rise | Sun fet. | D. L. | eng. ends | Day of D. | Dec. | Declination. |
|----|-------|----------|----------|----------|-------|-----------|-----------|------|--------------|
| 1 | 1 | 26 | 420 | 740 | 10 | 34 | 15 | 20 | 18 |
| 7 | 1 | 52 | 429 | 731 | 10 | 8 | 15 | 21 | 36 |
| 13 | 2 | 11 | 439 | 721 | 9 | 49 | 14 | 22 | 56 |
| 19 | 2 | 31 | 450 | 710 | 9 | 29 | 14 | 20 | 18 |
| 25 | 2 | 48 | 516 | 657 | 9 | 12 | 13 | 58 | 240 |

SEPTEMBER hath XXX Days.

[illegible]

Geocentric Latitude.

OCTOBER hath XXXI Days.

| Day | n | h | f | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|-----|---|----|---|----|---|----|---|----|---|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 0 | 44 | 1 | 18 | 1 | 24 | 2 | 54 | 2 | 8 | 2 | 26 | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 0 | 44 | 1 | 19 | 1 | 23 | 2 | 34 | 0 | 43 | 3 | 14 | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 0 | 44 | 1 | 19 | 1 | 21 | 2 | 14 | 0 | 23 | 1 | 5 | | | | | | | | | | | | | | | | | | | | | | |

New Moon, 1 day, 3 morning.
 First Quarter 9 day, 2 morn.
 Full Moon 16 day, 4 afternoon.
 Last Quarter 23 day, 10 morn.
 New Moon 30 day, 5 aftern.

Heliocentric Longitude.

| Day | n | h | f | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|-----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 8 | 57 | 21 | 32 | 10 | 59 | 0 | 45 | 14 | 11 | 11 | 51 | 6 | | | | | | | | | | | | | | | | | | | | | |
| 7 | 9 | 2 | 21 | 46 | 11 | 31 | 4 | 34 | 23 | 48 | 0 | 31 | 4 | | | | | | | | | | | | | | | | | | | | | |
| 13 | 9 | 6 | 21 | 59 | 12 | 4 | 8 | 22 | 3 | 12 | 20 | 55 | 4 | | | | | | | | | | | | | | | | | | | | | |
| 19 | 9 | 11 | 22 | 13 | 12 | 36 | 12 | 11 | 13 | 6 | 15 | 7 | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 9 | 16 | 22 | 26 | 13 | 9 | 15 | 58 | 22 | 47 | 14 | 7 | | | | | | | | | | | | | | | | | | | | | | |

| M | W | Festival | Asp. & weath. | D | D | n | h | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|----|---|----------------|---------------|-------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| D | D | Days. | | tets. | 1 | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n |
| 1 | S | Remig. Ph. | th. be. | 6a21 | n | 10 | 27 | 4 | 14 | 23 | 3 | 9 | 0 | 13 | 37 | 0 | | | | | | | | | | | | | | | | | | | | | | |
| 2 | B | 19 S. aft. T. | Δ 4 ♀ | 6 30 | 5 | 10 | 27 | 4 | 15 | 24 | 4 | 9 | 50 | 26 | 42 | 5 | | | | | | | | | | | | | | | | | | | | | | |
| 3 | M | 4 so. 9.45 n | Some | 7 24 | 10 | 27 | 4 | 15 | 25 | 6 | 10 | 58 | 9m | 23 | 10 | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | T | ♀ rif. 2.4 m | showers | 7 25 | 3 | 10 | 27 | 4 | 16 | 26 | 7 | 11 | 57 | 21 | 57 | 14 | | | | | | | | | | | | | | | | | | | | | | |
| 5 | W | Cl. fl. 11.50n | at the | 7 52 | 2 | 10 | 27 | 4 | 17 | 27 | 8 | 12 | 57 | 4 | 9 | 18 | | | | | | | | | | | | | | | | | | | | | | |
| 6 | T | Faith | begin- | 8 25 | 2 | 10 | 27 | 4 | 17 | 27 | 9 | 13 | 56 | 16 | 9 | 21 | | | | | | | | | | | | | | | | | | | | | | |
| 7 | F | ♂ retro. ion | * ♀ ♀ | 9 5 | 1 | 10 | 27 | 3 | 18 | 28 | 10 | 14 | 55 | 28 | 0 | 22 | | | | | | | | | | | | | | | | | | | | | | |
| 8 | S | | ♂ D ♂ | 9 50 | f | 10 | 27 | 3 | 19 | 29 | 10 | 15 | 55 | 9 | 47 | 23 | | | | | | | | | | | | | | | | | | | | | | |
| 9 | B | 20 S. aft. T. | ning. | 10 47 | 1 | 10 | 27 | 3 | 19 | 30 | 11 | 16 | 54 | 21 | 37 | 23 | | | | | | | | | | | | | | | | | | | | | | |
| 10 | M | { St. Denis | | 11 50 | 2 | 10 | R | 3 | 20 | 1 | 12 | 17 | 53 | 3 | 33 | 21 | | | | | | | | | | | | | | | | | | | | | | |
| 11 | T | | Morn | 3 11 | 27 | 3 | 20 | 2 | 13 | 18 | 53 | 15 | 43 | 19 | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | W | ♀ rif. 2.14m | 8 24 ♀ | 0 56 | 4 | 11 | 27 | 3 | 21 | 3 | 13 | 19 | 52 | 23 | 10 | 15 | | | | | | | | | | | | | | | | | | | | | | |
| 13 | T | Fr. K. Ed. C. | | 2 6 | 5 | 11 | 27 | 3 | 22 | 4 | 14 | 20 | 52 | 10 | 5 | 11 | | | | | | | | | | | | | | | | | | | | | | |
| 14 | F | Colixt. PM. | Show- | 3 20 | 5 | 11 | 27 | 3 | 22 | 5 | 14 | 21 | 51 | 24 | 9 | 6 | | | | | | | | | | | | | | | | | | | | | | |
| 15 | S | 4 so. 8.38n | perhaps | 4 34 | 5 | 11 | 27 | 3 | 23 | 6 | 15 | 22 | 51 | 7 | 42 | 1 | | | | | | | | | | | | | | | | | | | | | | |
| 16 | B | 21 S. aft. T. | thun- | Drif. | 5 | 11 | 27 | 3 | 24 | 7 | 15 | 23 | 50 | 21 | 37 | 3 | | | | | | | | | | | | | | | | | | | | | | |
| 17 | M | Ethel. Virg. | □ ⊙ ♂ | 6a15 | 4 | 11 | 27 | 3 | 24 | 8 | 15 | 24 | 50 | 5 | 84 | 9 | | | | | | | | | | | | | | | | | | | | | | |
| 18 | T | St. Luke | der. | 6 44 | 4 | 11 | 27 | 3 | 25 | 9 | 15 | 25 | 50 | 20 | 10 | 14 | | | | | | | | | | | | | | | | | | | | | | |
| 19 | W | St. Frid. | Δ ⊙ ♀ | 7 16 | 3 | 11 | 27 | 3 | 26 | 10 | 15 | 26 | 49 | 4 | 37 | 18 | | | | | | | | | | | | | | | | | | | | | | |
| 20 | T | ♀ rif. 2.26m | ♂ ♀ ♀ | 8 0 | 1 | 11 | 27 | 3 | 26 | 11 | 15 | 27 | 49 | 19 | 3 | 21 | | | | | | | | | | | | | | | | | | | | | | |
| 21 | F | Cl. fl. 15.25 | General- | 8 50 | 0 | 11 | 27 | 3 | 27 | 12 | 14 | 28 | 40 | 3 | 52 | 23 | | | | | | | | | | | | | | | | | | | | | | |
| 22 | S | | ly | 9 53 | 1 | 11 | 27 | 3 | 28 | 13 | 14 | 29 | 40 | 17 | 83 | 23 | | | | | | | | | | | | | | | | | | | | | | |
| 23 | B | 22 S. aft. T. | pleasant | 11 5 | 2 | 11 | 27 | 3 | 28 | 14 | 13 | om | 40 | 1 | 42 | 22 | | | | | | | | | | | | | | | | | | | | | | |
| 24 | M | ♂ retro. 14n | to the | Morn | 3 | 11 | 27 | 3 | 29 | 15 | 12 | 1 | 49 | 15 | 36 | 19 | | | | | | | | | | | | | | | | | | | | | | |
| 25 | T | K. G. accel. | Crisp. | 0 22 | 4 | 11 | 27 | 3 | 30 | 16 | 11 | 2 | 40 | 29 | 21 | 13 | | | | | | | | | | | | | | | | | | | | | | |
| 26 | W | K. G. procl. | ♂ D ♀ | 1 38 | 5 | 11 | 27 | 3 | 31 | 17 | 10 | 3 | 49 | 12 | 55 | 11 | | | | | | | | | | | | | | | | | | | | | | |
| 27 | T | | [Δ ⊙ 4 | 2 53 | 5 | 11 | 27 | 3 | 32 | 18 | 9 | 4 | 49 | 26 | 18 | 6 | | | | | | | | | | | | | | | | | | | | | | |
| 28 | F | St. Si. & Ju. | end. | 4 7 | 5 | 11 | 27 | 3 | 33 | 19 | 8 | 5 | 49 | 9 | 30 | 3 | | | | | | | | | | | | | | | | | | | | | | |
| 29 | S | Cl. fl. 16.11 | ♂ ⊙ ♀ | 5 10 | 5 | 11 | 27 | 3 | 34 | 20 | 7 | 6 | 40 | 22 | 29 | 4 | | | | | | | | | | | | | | | | | | | | | | |
| 30 | B | 23 S. aft. T. | | Diets | 4 | 11 | 27 | D | 3 | 22 | 5 | 7 | 49 | 5 | 15 | 9 | | | | | | | | | | | | | | | | | | | | | | |
| 31 | M | | □ ♂ ♀ | 5 13 | 4 | 11 | 27 | 3 | 35 | 23 | 4 | 8 | 40 | 17 | 47 | 13 | | | | | | | | | | | | | | | | | | | | | | |

| D | D. L. | Sun | Sun | D. L. | leng. | Day | Declination. | | | | | | | | | | | | | | | |
|----|-------|------|------|-------|-------|------|--------------|----|---|----|-------|---|----|----|---|----|----|----|--|--|--|--|
| | beg. | rise | tets | ends | of D. | dec. | ⊙ | f | n | h | n | 1 | f | ♂ | f | ♀ | 1 | h | | | | |
| 1 | 4 | 14 | 6 | 12 | 548 | 7 46 | 11 | 36 | 5 | 2 | | | | | | | | | | | | |
| 7 | 4 | 29 | 6 | 24 | 531 | 7 31 | 11 | 12 | 5 | 26 | 334 | 8 | 20 | 22 | 9 | 11 | 18 | 25 | | | | |
| 13 | 4 | 42 | 6 | 36 | 524 | 7 18 | 10 | 48 | 5 | 50 | 553 | 8 | 13 | 22 | 8 | 11 | 32 | 24 | | | | |
| 19 | 4 | 53 | 4 | 47 | 513 | 7 7 | 10 | 26 | 6 | 12 | 8 9 | 8 | 7 | 22 | 8 | 11 | 29 | 24 | | | | |
| 25 | 5 | 3 | 6 | 5 | 2 | 6 57 | 10 | 4 | 6 | 34 | 10 21 | 8 | 0 | 22 | 8 | 11 | 33 | 23 | | | | |
| | | | | | | | | | | | 12 28 | 7 | 53 | 22 | 7 | 11 | 39 | 22 | | | | |

Geocentric Latitude.

NOVEMBER hath XXX Days.

Heliocentric Longitude.

| Geocentric Latitude. | | | | | | | | | | Heliocentric Longitude. | | | | | | | | | |
|------------------------------|----|---|----|----|---|----------------|----------|------|------|-------------------------|----|----|----|----|----|----|----|----|----|
| D | M | h | m | s | D | M | h | m | s | D | M | h | m | s | D | M | h | m | s |
| 10 | 45 | 1 | 20 | 19 | 2 | 30 | 56 | 0 | 28 | 1 | 9 | 21 | 22 | 42 | 13 | 47 | 20 | 23 | 4 |
| 30 | 45 | 1 | 20 | 17 | 1 | 44 | 1 | 41 | 2 | 22 | 7 | 9 | 26 | 22 | 55 | 14 | 20 | 24 | 9 |
| 50 | 46 | 1 | 19 | 14 | 1 | 26 | 2 | 51 | 3 | 2 | 13 | 9 | 30 | 23 | 9 | 14 | 53 | 27 | 55 |
| First Quart. 7 day, 10 night | | | | | | | | | | 4 | | | | | | | | | |
| Full Moon 15 day, 3 morn. | | | | | | | | | | 23 | | | | | | | | | |
| Last Quart. 21 day, 7 night | | | | | | | | | | 38 | | | | | | | | | |
| New Moon 29 day, 11 morn. | | | | | | | | | | 52 | | | | | | | | | |
| D | M | h | m | s | D | M | h | m | s | D | M | h | m | s | D | M | h | m | s |
| 7 | 0 | 4 | 1 | 1 | T | All Saints | Δ | 4 | 8 | 5 | 5 | 6 | 12 | 27 | 3 | 4 | 24 | 3 | 9 |
| 2 | 5 | 3 | 2 | 1 | W | All Souls. Pr | Edw. b | 6 | 25 | 2 | 12 | 27 | 3 | 5 | 25 | 2 | 10 | 40 | 12 |
| 8 | 10 | 4 | 3 | 1 | T | Prs. Soph. b. | 1 ret. | 7 | 2 | 1 | 12 | 27 | 3 | 6 | 26 | 1 | 11 | 50 | 24 |
| 17 | 14 | 4 | 4 | 1 | F | Revo. 1688 | * ☉ ☿ | 7 | 47 | 1 | 12 | 27 | 3 | 7 | 27 | 0 | 12 | 50 | 5 |
| 9 | 18 | 4 | 5 | 1 | S | Powd. Plot | ☐ ☿ ☿ | 8 | 37 | 1 | 12 | 27 | 3 | 7 | 28 | 1 | 13 | 50 | 17 |
| 9 | 21 | 4 | 6 | 1 | B | 24 S. aft. T. | ☿ ☿ ☿ | 9 | 35 | 2 | 12 | 27 | 3 | 8 | 20 | 20 | 14 | 50 | 29 |
| 0 | 22 | 4 | 7 | 1 | M | Mic. T. beg. | Cold | 10 | 40 | 3 | 12 | 27 | 3 | 9 | 21 | 21 | 15 | 51 | 11 |
| 17 | 23 | 4 | 8 | 1 | T | ♀ ri. 3.5 m | ☿ ☿ ☿ | 11 | 49 | 4 | 12 | 27 | 5 | 9 | 22 | 22 | 16 | 51 | 23 |
| 37 | 23 | 4 | 9 | 1 | W | L. M. D. L. | Q 4 ☿ | Morn | 5 | 12 | 26 | 3 | 10 | 3 | 17 | 52 | 5 | 59 | 13 |
| 33 | 21 | 4 | 10 | 1 | T | 4 f. 7.16 n | rain. | 0 | 58 | 5 | 12 | 26 | 3 | 11 | 4 | 0 | 18 | 52 | 18 |
| 43 | 19 | 4 | 11 | 1 | F | St. Martin. | | 2 | 11 | 5 | 12 | 26 | 3 | 11 | 5 | 1 | 19 | 52 | 1 |
| 10 | 15 | 4 | 12 | 1 | S | 2 return | Brisk | 3 | 26 | 5 | 12 | 26 | 3 | 12 | 6 | 1 | 20 | 53 | 15 |
| 5 | 11 | 4 | 13 | 1 | B | 25 S. aft. T. | winds, | 4 | 44 | 5 | 12 | 26 | 3 | 13 | 7 | 2 | 21 | 53 | 29 |
| 9 | 6 | 4 | 14 | 1 | M | ♂ fet. 10.15 n | Δ 4 ☿ | 6 | 44 | 4 | 12 | 26 | 3 | 14 | 8 | 3 | 22 | 54 | 14 |
| 42 | 1 | 4 | 15 | 1 | T | Machutus | and | D | rif. | 3 | 12 | 26 | 3 | 14 | 9 | 4 | 23 | 54 | 28 |
| 37 | 30 | 4 | 16 | 1 | W | ♀ ri. 3.21 m | ☿ ☿ ☿ | 5 | 50 | 2 | 12 | 26 | 3 | 15 | 11 | 5 | 24 | 55 | 13 |
| 48 | 9 | 4 | 17 | 1 | T | Hu. Bi. Lin. | | 6 | 40 | n | 12 | 26 | 3 | 16 | 12 | 6 | 25 | 56 | 28 |
| 10 | 14 | 4 | 18 | 1 | F | 3 return | showers | 7 | 40 | 1 | 12 | 26 | 3 | 16 | 13 | 8 | 26 | 57 | 13 |
| 137 | 18 | 4 | 19 | 1 | S | Clo. flo. 14.8 | of rain | 8 | 51 | 2 | 12 | 26 | 4 | 17 | 14 | 9 | 27 | 57 | 27 |
| 3 | 21 | 4 | 20 | 1 | B | 26 S. aft. T. | and | 10 | 7 | 3 | 12 | 26 | 4 | 18 | 15 | 10 | 28 | 57 | 12 |
| 52 | 23 | 4 | 21 | 1 | M | | * ☿ ☿ | 11 | 25 | 4 | 12 | 26 | 4 | 19 | 16 | 12 | 29 | 58 | 26 |
| 8 | 23 | 4 | 22 | 1 | T | 4 so. 6.30 n | perhaps | Morn | 5 | 12 | 26 | 4 | 19 | 17 | 3 | 0 | 30 | 59 | 12 |
| 12 | 22 | 4 | 23 | 1 | W | St. Clement | | 0 | 30 | 5 | 12 | 26 | 4 | 20 | 18 | 4 | 0 | 23 | 18 |
| 36 | 19 | 4 | 24 | 1 | T | | ☐ ☉ ☿ | 1 | 54 | 5 | 12 | 26 | 4 | 21 | 20 | 1 | 0 | 24 | 19 |
| 21 | 15 | 4 | 25 | 1 | F | D. Gloster b | Δ ☿ ☿ | 3 | 55 | 5 | 12 | 25 | 4 | 21 | 21 | 17 | 4 | 1 | 19 |
| 25 | 11 | 4 | 26 | 1 | S | ♀ ri. 3.46 m | thun- | 4 | 15 | 5 | 12 | 25 | 4 | 22 | 22 | 19 | 5 | 2 | 1 |
| 18 | 6 | 4 | 27 | 1 | B | Advent Su. | der. | 5 | 25 | 4 | 12 | 25 | 4 | 23 | 23 | 20 | 6 | 3 | 1 |
| 30 | 0 | 4 | 28 | 1 | M | Mic. Te. en. | Δ ☿ ☿ | 6 | 33 | 3 | 12 | 25 | 4 | 24 | 24 | 22 | 7 | 4 | 20 |
| 29 | 4 | 4 | 29 | 1 | T | Clo. fl. 11.3 | Rain to | D | fets | 2 | 12 | 25 | 4 | 24 | 25 | 23 | 8 | 5 | 8 |
| 15 | 9 | 4 | 30 | 1 | W | St. Andrew | the end. | 4 | 15 | 1 | 12 | 25 | 5 | 25 | 27 | 25 | 9 | 6 | 20 |

| Declination. | | | | | | | | | |
|--------------|----|---|----|----|---|----|----|----|----|
| ☉ | f. | ☿ | n | h | n | 4 | f. | ☿ | n |
| 14 | 46 | 7 | 45 | 22 | 7 | 11 | 33 | 21 | 2 |
| 16 | 36 | 7 | 41 | 22 | 6 | 11 | 29 | 19 | 0 |
| 18 | 16 | 7 | 37 | 22 | 6 | 11 | 22 | 18 | 30 |
| 19 | 43 | 7 | 33 | 22 | 5 | 11 | 13 | 17 | 5 |
| 20 | 58 | 7 | 30 | 22 | 5 | 11 | 1 | 15 | 35 |

DECEMBER hath XXXI Days.

| M | W | Festival | Afp. & | D | D | H | U | 8 | 8 | 0 | D | D | | | | | | |
|----|---|-----------------|---------|--------|----|----|----|----|----|----|----|------|----|----|----|----|----|---|
| D | D | Days. | weath. | fets. | W | II | X | ≡ | ≡ | f | W | lout | | | | | | |
| 1 | T | 8 f. 10. 14 n | □ 8 8 | 5a36 | 12 | 25 | 5 | 26 | 28 | 26 | 10 | 7 | 2 | 32 | 23 | 3 | | |
| 2 | F | | Windy, | 6 23 | 1 | 12 | 25 | 5 | 26 | 29 | 28 | 11 | 8 | 14 | 20 | 23 | 4 | |
| 3 | S | 14 f. 5. 47. n | □ 0 8 | 7 19 | 2 | 12 | 25 | 5 | 27 | 11 | 20 | 12 | 9 | 29 | 6 | 23 | 5 | |
| 4 | B | 2 Su. in Adv. | with | 8 20 | 3 | 12 | 25 | 5 | 28 | 2 | 13 | 10 | 7 | 55 | 21 | | | |
| 5 | M | clo. fl. 8' 38" | 8 1 8 | 9 25 | 4 | 12 | 25 | 5 | 29 | 3 | 2 | 14 | 11 | 19 | 50 | 18 | 3 | |
| 6 | T | Nicholas | 8 1 4 | 10 33 | 5 | 12 | 25 | 5 | 20 | 4 | 4 | 15 | 12 | 1 | 56 | 15 | | |
| 7 | W | 8 rif. 4.9 m | □ 4 8 | 11 44 | 5 | 12 | 25 | 5 | X | 5 | 5 | 16 | 13 | 14 | 18 | 10 | 5 | |
| 8 | T | Co. B. V. M. | Δ 4 8 | Morn | 5 | 12 | 24 | 5 | 1 | 6 | 7 | 17 | 14 | 27 | 0 | 6 | | |
| 9 | F | | fnow or | 0 54 | 5 | 12 | 24 | 6 | 1 | 8 | 9 | 18 | 15 | 10 | 6 | 0 | 4 | |
| 10 | S | | | 2 8 | 5 | 12 | 24 | 6 | 2 | 9 | 10 | 19 | 16 | 23 | 39 | 40 | 3 | |
| 11 | B | 2 Su. in Adv. | □ 8 8 | 3 26 | 4 | 12 | 24 | 6 | 3 | 10 | 12 | 20 | 17 | 7 | 8 | 39 | 10 | |
| 12 | M | clo. fl. 5' 28" | rain. | 4 45 | 3 | 12 | 24 | 6 | 4 | 11 | 13 | 21 | 18 | 22 | 7 | 15 | | |
| 13 | T | Lucy | | 6 7 | 2 | 12 | 24 | 6 | 4 | 12 | 15 | 22 | 19 | 6 | 11 | 56 | 19 | 1 |
| 14 | W | | 8 1 8 | D rif. | 1 | 12 | 24 | 6 | 5 | 14 | 16 | 23 | 20 | 22 | 1 | 22 | 2 | |
| 15 | T | 14 fet 10. 14 n | | 5a12 | n | 12 | 24 | 6 | 6 | 15 | 18 | 24 | 21 | 7 | 5 | 13 | 23 | 4 |
| 16 | F | O. S. C. T. e | 8 1 8 | 6 21 | 2 | 12 | 24 | 7 | 7 | 16 | 19 | 25 | 22 | 22 | 21 | 23 | 2 | |
| 17 | S | Oxf. Te. en | | 7 35 | 3 | R | 24 | 7 | 7 | 17 | 21 | 26 | 23 | 7 | 9 | 17 | 21 | 2 |
| 18 | B | 4 Su. in Adv. | Wind, | 8 55 | 4 | 12 | 24 | 7 | 8 | 18 | 23 | 27 | 24 | 21 | 54 | 18 | | |
| 19 | M | 8 rif. 4.37 m | 8 1 8 | 10 16 | 5 | 12 | 24 | 7 | 0 | 20 | 24 | 28 | 25 | 6 | 12 | 9 | 13 | 4 |
| 20 | T | | with | 11 32 | 5 | 12 | 23 | 7 | 0 | 21 | 26 | 29 | 27 | 19 | 58 | 8 | 4 | |
| 21 | W | St. Thomas | rain or | Morn | 5 | 12 | 23 | 7 | 10 | 22 | 27 | 30 | 28 | 3 | 22 | 4 | 3 | |
| 22 | T | | fnow; | 0 43 | 5 | 12 | 23 | 7 | 11 | 23 | 20 | 1 | 29 | 16 | 24 | 11 | 4 | |
| 23 | F | clo. with fun | more | 1 54 | 5 | 12 | 23 | 8 | 12 | 24 | 19 | 2 | 30 | 29 | 6 | 6 | 4 | |
| 24 | S | 8 fet 10. 10 n | mild to | 3 4 | 4 | 12 | 23 | 8 | 12 | 26 | 2 | 3 | 31 | 11 | 11 | 31 | 11 | 2 |
| 25 | B | Christm. da | 8 0 8 | 4 12 | 3 | 12 | 23 | 8 | 13 | 27 | 4 | 4 | 32 | 23 | 43 | 15 | 3 | |
| 26 | M | St. Stephen | the | 5 19 | 2 | 12 | 23 | 8 | 14 | 28 | 5 | 5 | 34 | 5 | 46 | 19 | | |
| 27 | T | St. John | end. | 6 24 | 1 | 12 | 23 | 8 | 14 | 29 | 7 | 6 | 35 | 17 | 41 | 21 | 3 | |
| 28 | W | Innocents | * 4 8 | 7 25 | 1 | 12 | 23 | 8 | 15 | 30 | 8 | 7 | 36 | 29 | 31 | 23 | 1 | |
| 29 | T | clo. f. 2' 56" | * 0 4 | D fets | 1 | 12 | 23 | 9 | 16 | 2 | 10 | 8 | 37 | 11 | 19 | 23 | 5 | |
| 30 | F | | Δ 8 8 | 4a50 | 2 | 12 | 23 | 9 | 17 | 3 | 12 | 9 | 39 | 23 | 9 | 23 | 4 | |
| 31 | S | Silvester | | 5 51 | 3 | 12 | 23 | 0 | 17 | 4 | 13 | 10 | 40 | 4 | 57 | 21 | 3 | |

| D | D. L. beg. | Sun rise | Sun set. | D. L. ends | leng. of D. | Day dec. | Declination. | | | | | | | | | | | | | |
|----|---------------|-------------|-------------|---------------|----------------|-------------|--------------|----|---|----|----|---|----|----|----|----|----|----|----|---|
| | | | | | | | ⊙ | f. | W | n | h | n | 24 | f. | ♂ | f. | ♀ | f. | ♀ | |
| 1 | 5 49 | 7 55 | 4 5 | 6 11 | 8 10 | 8 28 | 21 | 59 | 7 | 27 | 22 | 4 | 10 | 47 | 14 | 1 | 8 | 56 | 18 | 3 |
| 7 | 5 53 | 7 59 | 4 16 | 7 | 8 2 | 8 36 | 22 | 45 | 7 | 26 | 22 | 4 | 10 | 30 | 12 | 23 | 11 | 20 | 21 | 1 |
| 13 | 5 57 | 8 3 | 3 57 | 6 3 | 7 54 | 8 44 | 23 | 15 | 7 | 25 | 22 | 3 | 10 | 12 | 10 | 42 | 13 | 38 | 23 | 1 |
| 19 | 5 59 | 8 5 | 3 55 | 6 1 | 7 50 | 8 48 | 23 | 27 | 7 | 25 | 22 | 2 | 9 | 51 | 8 | 58 | 15 | 46 | 24 | 8 |
| 25 | 5 50 | 8 5 | 3 55 | 6 1 | 7 50 | 8 48 | 23 | 23 | 7 | 26 | 22 | 6 | 9 | 29 | 7 | 11 | 17 | 41 | 25 | 1 |

Answers to the Enigmas, Rebuses, Charades, &c.

| Enigmas, | Rebuses, | Charades, |
|---------------------|-------------------|-------------------|
| I. An Oak, | I. British Diary, | I. Carwithen, |
| II. A Saw, | II. Elliott, | II. Schoolmaster, |
| III. Pair of Shoes, | III. Love, | III. Handcuffs, |
| IV. Luxury, | IV. George Wilde, | IV. Necklace, |
| V. British Diary, | V. Milton, | V. Silkworm, |
| VI. Newspaper, | VI. A Nest, | VI. Tippet, |
| VII. A Pen, | | VII. Sweetheart, |
| VIII. A Particle, | | |
| IX. A Post, | | |

Paradox.—A Monosyllable.

ANSWERS TO THE PRIZE ENIGMA,

1. By Mr. Thomas Fox, Norton.

Diarian friends, of each degree, [me,] And shew to our posterity,
Come take your *Post*, and join with Our names plac'd in this Diary,
Let each employ his talent right, That they the same may carry on,
To give the rising age delight; When life is past, and we are gone.

2. By the Reverend J. Shackleton, Thornton, Yorkshire.

Admit a friend to wish you good success,—
Prevent it, Heaven, that *Di'ries* e'er should cease!
O may attempts t' improve and entertain,
So long continue countenance to gain,
That time and *Diaries* may alike remain.

3. Address to the Authors, by Autodidactus Ramptoniensis.

From your fam'd *Diary* much pleasure I receive,
Without it should be almost lost;
The same to you, with equal profit may it give,
And may you long maintain your *Post*.

4. By Mr. Joseph Woolen, Schoolmaster, Smalley, Derbyshire.

Your *Di'ry's* my pleasure, when I am at leisure,
Quite alone, by my own fire side;
And many an hour have exerted my power,
Before I can matters decide,
Tho' but little I do—yet I hope it is true,
And will be perused by most;
I like nothing better, than send you a letter,
Against first of May by the *Post*.

5. By Mr. John Fildes, Schoolmaster, in Liverpool.

But short indeed is this our life below,
Which oft embitter'd is with grief and woe;
These Heaven sends in mercy and in love,
To turn our thoughts to better things above.
Then let us while on earth still act our parts,
With minds contented, and with grateful hearts;
Let works of charity by us be done,
And may we all believe in Christ the Son!

That when before his judgment seat we stand,
We may obtain a *Post* at God's right hand,

6. By Mr. John Carwithen, Ripley, Derbyshire.

How checker'd are our days upon this stage,
From highest *Post* of honour, to the page;

To-day our prospects all are bright and clear,
 To-morrow clouded, all is dark and drear,
 We see no further than the present day,
 'Tis Providence directs the wheel of fate;
 And tho' a blank may seemingly appear,
 Each movement proves the ways of God are clear.

7. By Mr. Richard Savage, Cranfield, Bedfordshire.

Kind authors of the *British Diary*,
 Permit a youthful hand his skill to try,
 Who anxious strove to find the mystic clue,
 To solve the prize, and bring the *Psalm* view.

Other ingenious and separate answers were given by Messrs. Kemp Brown, Stevenson, Danis, Ward, Simpson, Willos Hostman, Shipfides &c. y. z. Cal. Broomwott, Cowley, Sutton, Era. Slingstone, and J. Savage.

GENERAL ANSWERS TO THE ENIGMAS.

1. By Mr. Joseph Woollen, Schoolmaster.

When the *Psalm* had brought down new *Diaries* from town,
 I saw them at sign of the Oak;
 A *Parade*, *Shoes*, *Pen*, *Luxury*, *News*,
 I perus'd while my pipe I did smoke.

2. By Mr. Thomas Fox, Norton.

I met George Wild the other day,
 And courteously to him did say,
 Pray Sir have you the *Diary* seen,
 The *British Diary* I mean:
 Where *Elliott*, *Milton*, *Neg*, and *Love*,
 Stand like *Oak Posts* within the grove;
 If to peruse it you're inclin'd.

3. On Spring, By Mr. John Savage, Norton, Northamptonshire.

Once more the balmy gales of spring,
 Waft o'er this fruitful Isle,
 Once more the tuneful warblers sing,
 Once more the valleys smile.
 Perch'd on the spreading *Oak* again,
 The thrush her song resumes;
 And flow'rets decorate the plain,
 Shedding their rich perfumes.
 Again the stream's meandering flow
 Along the verdant mead;
 Where late we saw the drifted snow,
 All o'er her surface spread.
 At eve's approach how sweet to stray
 With *Shoes* all damp with dew;
 While the *Luxuriant* valleys gay,
 Wave as the zephyrs blow.
 O how shall I in *Diary's* page
 Paint the delightful springs;

Newspaper *Pen* d in mystic shades,
 And bards of spirit sing.
 How pleasant in the early morn,
 Soon as the sun doth rise,
 And soaring larks o'er waving corn
 Thro' *Atoms* swiftly flies;
 Then how delightful 'tis to rove,
 Beside the limpid rill;
 Or thro' the shady sylvan grove,
 Or climb the tow'ring hill.
 While all around on every side,
 Omnipotence we view,
 Who still for mortals doth provide
 Both food and raiment too.
 O may we then with fervent zeal,
 And true humility;
 Praise thee O gracious Lord, who still
 Doth all our wants supply.

4. A Choice. By Mr. W. Shipfides, Normanton on the Wolds.

Indulgent Heaven would all my thoughts befriend,
 And I might chuse how I my time would spend;
 No superb mansions raised high in air,
 Like towering *Oaks*, should ever be my care.
 No *Psalm* nor pow'r I crave amongst the great,
 Being but *Atoms* of a happy state;

1 Enigma
 Prize
 8 Enigma

But far from these, near some *Luxuriant* plain, 4 Enigma
Where Love and Harmony alternate reign.

Where nature's works sublime like *British* *Is.* 5 Enigma

Delight the soul, and charm th' astonish'd eye.

A lonely cot I chuse, not proudly great,

Nor yet too meanly low, — but comely near.

With a *St.* *competence*, for to supply

My homely board, and *Pens* and *Paper* buy; 7 6 Enigma

And *Shoes* and raiment requisite to wear, 3 Enigma

Regale a friend, and sooth each *Sowing* care. 2 Enigma

And for to smooth the rugged path of life;

And make me more compleat, I'd have a wife;

Gracful in person, virtuously inclin'd;

In manners affable, of wit refin'd.

In such a state methinks I then could prove,

The height of pleasure, and the sweets of love;

Nor envy the vain pomp wealth does afford;

But chearful wait the summons of the Lord.

5. By Mr. John Fildes, Schoolmaster, in Liverpool.

Edward and Sally, or The Happy Discovery.

Beneath an *Oak* while Edward sat, And there was overjoy'd to see,

One pleasant morn in May, His *Sweetheart* Sally's face.

To hear the lark and linnet sing, Some one to her the letter sent,

And watch the lambskins play. Which she just then had torn;

In a *Luxur*'ant field he *Saw*, To tell her, Edward meant to wed,

A fair one *Pen*live stand, Another nymph next morn.

Who something like a *Newspaper*, But he convinc'd her it was false,

Held in her lovely hand. Then said I'll wedded be,

Which into pieces soon she tore, To-morrow morning, pretty maid,

And threw it all around! If you will marry me.

Then with her *Shoes* she trampled it, She gave consent, and beat church,

To *Atoms* on the ground. Sweet Sally made his own,

Surpriz'd at this uncommon sight, And in the *British* *Diary*,

He *Posted* to the place, I hope you'll make it known.

6. The wandering Lover, By *Wilos* *Hofman*.

As by a shady *Oak* I sat, Without *Necklace* she's *Passed* off,

Reading the *British* *Di.* And from her father's gone;

A man without a *Shoe* I *Saw*, Because he would not let her have,

Who unto me drew nigh. The man she'd fix'd upon,

As he approached near to me, Not *Lux*ry, but with *Milton*'s muse,

I asked him his name, Like *Atoms* spread her fame,

And what it was he seem'd to seek, And with a lover's lively *Pen*,

And why he hither came? Immortalize her name.

Distress'd *Gart* withen is my name, Now should I not my *Sweetheart* find,

A *Schoolmaster* am I, Nor *News* of her return;

Miss *Elliott* is the maid I seek, But like a *Bird* robb'd of her *Nest*,

The maid for whom I sigh. I will her absence mourn.

7. By Mr. Benjamin Kemp, Farnfield.

Advice to a young Lady.

Dear Sylvia why vain of your beauty, ah! why,

That frail fickle child of an hour;

Youth flees like an *Atom*, or *Post* passing by,

And beauty will fade like a flower.

Can *Luxury* display'd from the *Tippet* to *Shoe*;
 The *Necklace* so gaudy and vain;
 Or all the profusion the *Silkworm* bestows,
 Give ease in the moment of pain?
 Ah! place no dependance on grandeur and pride;
 'Tis delusion and vanity all;
 Yon *Oak*, whose gay branches extend far and wide,
 This night by the *Hand-Saw* may fall.
 In the choice of a *Sweetheart*, let *Love* be your guide,
 To no fopling or fool be a wife;
 Ho *Nest Milton*, who doth at the *New Shoe* reside,
 Tho' humble, may bless you thro' life.
 Let the fam'd *British Diary* your *Schoolmaster* be,
 Read *Carwithen*, *Elliott*, and *Wilde*;
 From the *Pen* of philosophy candid and free,
 Flow precepts instructive and mild.
 Should you *Hand cuff* aside this advice of your friend,
 And *Nosyllable* please that is said;
 Yet know 'twas design'd for a far better end,—
 To improve and instruct a young maid.

Other ingenious answers were given by Mess. *Carwithen*, *Brown*, *Danis*,
Autodidactus, *Cowley*, *Sutton*, *Rover*, *Lock*, and *Singletoniensis*.

ANSWERS to the REBUSSES & CHARADES.

1. By *Autodidactus Ramptoniensis*.

As I return'd from *Retford* fair at night,
 Two maidens, *Hand-in-hand* I overtook; alluding to *Handcuffs*
 And was extremely pleas'd at the sight,
 So neat and spruce like *Silkworm* one did look.
 A *Necklace-Tippet* did adorn the fair,
 While she was fresh and blooming in her teens;
 We talk'd of marriage pleasure, and its care,
 Of *Sweetheart*, and of courtship's blissful scenes.
 Now should it be our happy lot to wed,
 I hope *Carwithen*, *Elliot*, and *George Wilde*,
 Will grace our nuptials— they shall be well fed,
 And drink clear English nectar, stout and mild.
 With *British Diary* will them entertain,
Schoolmaster Milton too, if they approve;
 At night find them a *Nest*, quite snug, tho' plain,
 While we enjoy the sweets of lawful *Love*.

2. By Mr. John Fildes, Schoolmaster, of Liverpool.

| | |
|--|--|
| The <i>British Diary</i> each year, Grows more and more esteem'd, By men of science and true wit, It is unmatched as deem'd. But few with <i>handcuffs</i> are in love, The <i>silkworm</i> spins its nest; | With <i>tippets</i> and with <i>necklaces</i> Young <i>sweethearts</i> oft are dress'd. <i>George Wilde</i> and <i>Carwithen</i> are bards Like <i>Milton</i> known to fame; And <i>Elliott</i> as a <i>schoolmaster</i> , Has gained a lasting name. |
|--|--|

3. An Ode to Peace, By Mr. John Carwithen.

Come lovely *Peace* and bless again this isle,
 Expand thy wings, let trade and commerce smile;
 Stretch forth thy fostering arm from shore to shore,
 Take war's rude *handcuffs* from th' industrious poor.

Let *Wilde* and *Elliott* grace the *British Di*;
And strive that hard *John Milton* to outvie;
Give to *Carwithen* time thy praise to sound,
Thy heav'n-born name t' distant lands resound.

Contentment, peace, and plenty here below,
The greatest blessings heaven can bestow;
Whilst war's rude hand our pleasures all destroy,
And robs the mother of her darling boy.

The maid deplores her *sweetheart's* loss in vain,
And to the *schoolmaster* pours forth her strain,
In *monosyllables* his loss bewail,
And prays the winds to fill his tardy sail.

That she again may clasp him to her breast,
And like a *silkworm* fill his absent nest;
No longer then may she his loss deplore,
Come Peace! let *Amathea's* horn run o'er.

From thy abundance deck each roseate fair,
May she a spangled *necklace tippet* wear;
And *Ceres* with her yellow hand prepare,
Auspicious crown the harvest ev'ry year.

Other ingenious and separate answers were given by Messrs. Kemp, Brown, Denis, Wilos Hostman, Simpson, Evans, Fox, x. y. z., John Savage, Sutton, Erasmus Slingstone, Rover, and Amorythum.

ANSWERS TO THE QUERIES.

1. By Mr. Benjamin Kemp, Farnsfield.

The meaning of the text seems fully explained in the 13th St. John, v. 22; the sense seems to run thus,—You would not be so much in fault as you now are, if you erred ignorantly; but it is a far greater sin to condemn the known will of God, than to be ignorant of it.—But now you say, we see; now you put on the form of sanctity, and shake not off your original transgression; you therefore stand more clearly and inexcusably convicted of it.

Autodidactus saith,

Our blessed Saviour here may probably mean, that had they been born blind, as the man he had just restored to sight, they would not have had the means of acquiring so perfect a knowledge of himself, as the promised Messiah, as now they had, and consequently would have met with compassion rather than resentment; but now, their blindness and ignorance were wilful, as they had both seen and hated both him and his father.

The same was also answered by Mr. John Carwithen.

2. By Mr. John Brown, of Wittington.

There are many sins that are great, yet pardonable, and are not unto death; for Christ himself hath said, that all manner of sin and blasphemy shall be forgiven unto men, except it be the sin against the Holy Ghost. Now this sin against the Holy Ghost, is that sin which St. John calls here the sin unto death; not because that sin deserves death alone, for so does all sin deserve death temporal, for the wages of sin, even all sin, is death; but this sin against the Holy Ghost is called the sin unto death, because it binds a man over to eternal death, without a possibility of recovery.—And he that commits this sin there is no hopes of mercy, no hopes of pardon, for such an one we are forbidden to pray.

Similar answers also by *Autodidactus*, *Olinthus*, *Gil. G.* & Mr. Kemp.

The same by Mr. John Carwithen.

The sin that is not unto death, is the infirmities of the flesh, which St. Paul saith are manifest: they are those that offend the laws of the nation where we dwell; for which there are temporal punishments allotted according to the nature of the offence, and consequently a sin against man, or the wounding of our conscience, and not imputed as sin against God. For, as our first parents could not withstand the wiles of the serpent, and fell to rise again in more exalted state, not having power to withstand; the punishment was not inflicted eternally, but for a season; and the imbecility of nature has existed ever since the original sin. So was nature's law written in the heart, to the accusing or excusing for that which I do, I allow not; for what I would do, that do I not, but what I hate, that I do. These are the deeds of the flesh, warring of all the seed of Abraham, and unto them it is not imputed as sin. Those are the people St. John calls brethren, and adviseth every one to admonish a brother when he seeth him offend the law; for he saith all unrighteousness is sin, that is, it woundeth the conscience of all those that are born of God, for whosoever is born of God sinneth not, for his seed is in him. But those that are born of the world or the devil, are wicked, for his seed remaineth in him; those are the people whom Christ calleth the children of disobedience, cursed children, the barren tree, a generation of vipers, &c. whose deeds are evil and offend both God and man; reserved in chains of darkness for that great and notable day, when every seed springeth up in its own likeness. Therefore St. John saith; we need not pray for the sin that is unto death for it cannot be averted; because the Lord hath sworn that this generation should not enter into his rest; therefore prayer can be of no avail. For heaven and earth shall pass away, but my word shall not pass away saith the Lord.

3. *By Mr. Benjamin Kemp, Farnsfield.*

Judges, 5 ch. 20 v. *The stars in their courses fought against Sisera.* That is they, in their several stations (like soldiers ranged in battle) as the host of God, with their influence raising the storms and horrible tempests conspired altogether with earthly creatures, to work the ruin of Sisera and his army. By this kind of rhetorical expression, Deborah shews that not only the Israelites, but the Lord himself, both from heaven and earth, by all means and creatures. *Autodidactus* thinks, no more is meant than the glittering light of the stars lengthened the day of battle, while Israel were avenged on on their enemies. *Dr. Shaw* thinks the stars fought against Sisera, by bringing abundance of rain, that Kishon became so high and rapid as to sweep away the host of Sisera in attempting to ford it.

The same by Mr. John Brown.

The stars in their courses fought against Sisera. Not by sword or spear; not by thunder or lightning; but by those fatal and malevolent influences which with Sisera and his host were marked from their birth, and drawn together by the operations of their influence, to partake in one common destruction in the same day, that their influences may fall by due course of nature, at such exact periods, as to effect the punishment of the wicked, and of God's declared enemies, such as was Sisera, when the abominations call forth the judgments of an injured Deity, by which the purposes of God, and all the events of this life, are uniformly brought to pass.

The same was also answered by Mr. John Carwithen.

NE

I. ENIGMA (79) by X. Y. Z.

Permit a friend unto the fair,
In British Diary to appear;
Not having any fear or doubt,
But quickly you will find me out.
In earth or sea I may be found,
In mountains or in marshy ground;
Tho' only seen once in a year,
By you I every day appear;
In Asia and Africa,
In Charlestown in America. [made,
Without me peace had ne'er been

The soldiers ne'er implore my aid;
I'm serviceable to the state,
And help to make the truly great.
To parliaments I am a friend,
But 'till the traitor I attend;
I'm with the maid when she—but
hold,
Too much I have already told;
For before this I make no doubt,
But you have found your servant
out.

II. ENIGMA (80) by Mr. John
Diarian bards attentive be,
And deign a-while to think on me;
I am your true and faithful friend,
And unto all do comfort lend.

Smith: Alton Park, Staffordshire.
For all will my assistance own.
In me the sick do find relief;
And for a-while forget their grief;
I soothe the labouring soul to rest,
And lull the minds of the distressed.
Then wits of enigmatic fame,
From these few hints declare my name

III. ENIGMA (81) by Mr. John
You enigmatic bards attend,
I ev'ry one of you befriend;
Likewise in British Di'ry reign,
And upon ev'ry leaf I'm seen;
And in a letter clear in sight,
I'm often seen in black and white.
In country and in kingdom found,
In city, and the world all round;
In markets too I always be,
'Mongst ev'ry trader you may see;
And when the Judge comes with his
train,

John Thompson, Coultston Bassett.
I'm seen with him upon the plain;
And when a jury he doth call,
There I am seen with great & small.
With lords and commons I appear,
With kings, and queens, and servi-
If a beggar chance to meet, [teer;
I'm seen with him at head and feet;
And in the ships upon the seas,
There I'm known to rest at ease.
When you are by yourself at leisure,
My little theme unfold with plea-
sure.

IV. ENIGMA (82) by John
I'm oft produc'd by Borean rage,
When elemental war doth wage;
Whose fury makes the oaks to bend,
While tempest o'er the plain descend.
When th' rage is o'er, and wind so
bleak,
And the ethereal sky doth streak;
When cheerful Sol withdraws his ray,
And trembling lights illumine the way.
'Tis then that I receive my birth,
And fix'd throughout the spacious
earth;

John Savage, Norton, near Towcester.
Oft made a widow of a wife;
Parents oft mourn their children
dead,
And ev'ry hope with them is fled;
Altho' such dreadful things are done,
The fault is certainly their own;
'Tis true I'm never known to kill,
Nor blood I'm never known to spill.
'Twas folly, chance, or fate, depend,
Brought them untimely to their end.
I'm condescending as to be,
Trode under foot of low degree;
Yet not confin'd to Albion's shore,
I'm seen where foaming billows roar;
With fury fly before the storm,
While sailors view my dismal form;
For if I light upon the ship,
They're often bury'd in the deep;
Regardless of their piercing cries,
Exulting mount towards the skies;
Undaunted skim the raging main,
I'll mixt with element again;
For ever lost to human eye.
Ingenious bards my name descry.

Where my parent marks her career,
Attending all sharp and severe.
Some with regret my face behold,
Others revere me more than gold;
Who strives my healthful charms to
share, [reer;
And fearless mounts with swift ca-
Be cautious, O ye youthful train,
Oft fatal prove, tho' entertain;
Thousands by me are mangled,
Perhaps with broken bones in bed;
Thousands by me have lost their life,

V. ENIGMA (83) by Mr. John Jackson, Bilston.

Diarian bards attend while I pour-
 tray, [lay;
 The mazy windings of my infant
 When winter courts with winds
 tempestuous howl, [pole;
 Th' icy embraces of the northern
 When o'er the waste where trackless
 deserts lie, [eye;
 The weary pilgrim darts a wishful
 When hope forsakes him at the close
 of day, [on the way,
 I prove his friend, and guide him
 For me the fair in anxious bodings
 wait, [stin'd fate;
 And thro' my aid receive their de-
 I now bear each fond motion of the
 soul, [pole.
 That wafts a sigh from Indies to the
 To all mankind my services I lend,
 And every station owns me for their
 friend; [ful eye,
 The merchant views me with a wish
 While pleasing fancies tune his heart
 to joy.

Beside yon ancient hoary gothic
 hall, [hall;
 Where creeping ivy tops the moul-
 d'ring walls; [jovial choir;
 Where oft the sportsman join'd the
 And roar'd his echoes round the
 kitchen fire; [dress'd,
 Where rustic glee in vacant gestures
 Welcom'd the hourless stranger for
 his quest;
 Lo! there I stand a silent monument
 Of mirth departed rustical content.
 When war's fell blasts the sight of
 anguish swell, [mal knell;
 And how! departing commerce's sdif-
 When o'er the fields rise mountains
 of the slain, [the plain;
 And floods of gore red waving o'er
 I stand the foremost in the bloody
 fight, [rific might;
 And dares the power of death's ter-
 The daring hero to the combat raise,
 and crown his brows with laurels
 and with bays.

VI. ENIGMA (84) by Benjamin Kemp, Farnsfield.

Let others boast their dignity and
 birth, [worth;
 And high exalt their property and
 I boast not high descent, my birth
 was mean, [green,
 My parent wander'd on the verdant
 Till man forth brought him from
 the rural plain, [fatal stain;
 And shed his harmless blood, ah!
 Hid in oblivion bethe theme unsung,
 A parent slaughter'd, and his off-
 spring hung;
 How thousands dauntless dy'd by
 steel and fire, [mangled fire.
 Who with new birth inspir'd my
 Whom, as if vengeful of his stream-
 ing gore,
 Did mutilated parts to life restore.
 These scenes remov'd, lo! quickly I
 appear, [I wear;
 Forc'd by the rod to take the dress
 Tho' often cloath'd, yet naked and
 forlorn,

And oft suspended hang from night
 to morn;
 Or in some pound perchance con-
 fin'd all day, [astray.
 Like Dobson's beast that aptly goes
 Yet why in plaintive epithets delight,
 Since I the weeping statute of a night,
 Oft gain preferment, tho' ignobly
 born, [adorn;
 To wait at court, the palace too
 Kings, lords, and commons, o'er th'
 affairs of state, [to wait;
 Will own my influ'nce—deign on me
 Yet not high circles only I befriend,
 My generous aid to all mankind I
 send; [dear I guide,
 The weary'd wight, thro' lab'rins
 Or stand expiring at Clarinda's side.
 But ah! ingratitude, detested name,
 When dire consumption seizes on my
 frame;
 Succeeded by some hapless brother I,
 Exhausted and unpitied fall and die.

VII. ENIGMA (85) by Mr. John Carwithen.

A Jewish name please to transpose,
 A lady's head-dress will disclose,
 Which now is wore, and quite in
 The appellation for a rogue, [yogue,
 To think upon our greatest bane.

Transpose again, and you will see,
 What's full of all activity;
 And surely you will find my name,
 To think upon our greatest bane.

VIII. ENIGMA (86) by Mr. W. Shippers, Normanton on the Wolds.

Ye British bards with wreaths of laurels crown'd, [renown'd; name;
For wisdom, and for learning, much Then wisdom learn, and solid joys
Whole mystic thoughts, in sublime you'll find, [mind;
language teem, [esteem;
And claim at once attention and Sweet attribute unto a polish'd
Grant me excuse, nor deem me bold- For the instructs, and teaches man
ly rude, [trude.
That all is vanity on earth below;
If I, in mystic robes, should here in- True to my office, faithful to my
In ancient days, I scarcely then was trust, [just;
known, [grown,
I oft obstruct the pious and the
But now so common and profuse I'm Yet exercise my power with legal
The country throughout I do abound, right, [light.
And oft times may on barren sands And in the path of duty take de-
be found; Then oh! ye stubborn, and ye
And tho' I cannot boast of rank or thoughtless youth, [truth:
state, [and great;
I've oft been notic'd by the rich Observe this precept, and give ear to
And such my services are now on To serve you at your call there's
earth. [power and worth; none more free, [on me;
Than kings and nobles own my Than I, yet oft your curses throw
And mighty chiefs, high fam'd for But for what reason say, ye men of
seats in war, [har. sense, [offence.
Since I ne'er gave to man the least
Submissively oft stand before my O base ingratitude! for favours past,
And surely now I may some honour You-vile insulting language on me
claim, [fame; cast.
On my support some daily do de-
Since I'm promoted to a post of pend, [a friend;
And noble principles my actions Yet few there are that own me as
guide, [bribe.
And so ungrateful is the heart of
For I was never known to take a man, [can.
But ah! what's known now, with That oft to shun me he does all he
her dazzling train,

IX. ENIGMA (87) by Mr. Daniel Sheridan.

The smiling spring, the newly blos- And often grac'd her fair impartial
som'd spray, [cle's lay;
The budding bushes, and the thros- E'en now above the cumb'rous
The vernal season ever fair & young, fleecy clouds, [with gods;
At once invites my enigmatic song. I dwell, enroll'd, with heroes and
When bounding stags thro' shady When blust'ring prigs, and sump'ring
forests rove, [grove; nymphs resort, [court;
Fly o'er the plains, or frolic in the To the loud garret of fam'd Thalia's
Companion of their steps I may be When their vile throats all harmo-
seen, [mien. ny destroys, [noise.
And proudly aiding their majestic 'Tis I support them in their gothic
But ah! when I to man my aid im- When loud applause with ardent
part, [tortur'd heart; transport fill'd, [pic field;
What earthly balm can soothe his The martial champions of th' olym-
Wealth, love, and friendship court When fix'd aloft, the hero guides
his mind in vain, [pain. the rein, [smoking plain;
Death, only death, can mitigate his And swiftly glides around the
In Saturn's reign, when justice 'Tis I that rule the rapid Chonot's
dwell with man, [gan, course, [ling horse;
Ere vile corruption and deceit be- And kept its union with the foam-
I bow'd obsequious to her high com- When lovely spring revisits earth
mand, again,

And decks with chearful green, the lonely plain;
 I fondly stray along meandering streams, [trifling lambs
 And range the meadows with the From Georgium Sidus to the silver
 O'er lakes where swans their snow From star to star thro' bounded
 white plumage laves, [waves; space I move, love.
 I dance supinely on the trembling Reviving nature, and improving
 I help to ripen gay Pomona's stores; When o'er the vast atlantic Phebus
 And oft repose within her clust'ring goes, [soft repose;
 bow'rs, [ers. And leaves this wearied world to
 Or rest on sweets of aromatic flow- When Philomel to pensive woods
 To shun my glance young Stella complain, [tive strain;
 turns her head, [friendly shade; And mournful Echo joins the plain-
 And hides her blushes in some I trembling stand on some high
 From pregnant dust those buzzing western hill, [well.
 tribes I rear, [of air. To bid this fav'rite isle a kind fare-
 "That sport and flutter in the fields But hill, and dale, field, grove, and
 Thro' chrystal Ether's lucid tracks flowery lawn, [dawn.
 I pierce, Expecting smile to cheer the breezy

X. ENIGMA (88) by Mr. John Carwithen.

Wars dread alarm spreads terror far and near, [rear;
 Awakes confusion in the front and Unto each robust youth to join the
 The messenger of fate I move along, train, [laws maintain;
 And drown the clamour of the martial song; Their prowess prove, and ancient
 Terrific speed my course across the The time prefix'd, the jocund swains
 field, [to yield attend, [his friend;
 Where each embattl'd hero's forc'd A circle drawn, where each appoints
 To my superior strength; o'er all To aid him in the contest should he
 pervade, fail, [assail
 And ne'er capitulate or retrograde, Then with determin'd vigour each
 By circuitous march, but onward His opponent, while I'm borne to
 soar, [plore; and fro, [to know;
 Nor at my horrid acts do ne'er de- And who's possess of me, each wants
 But justice deal alike throughout the convey, place
 earth, [faith; Triumphantly the laurels bear away,
 Though not possess of never-failing Unto his love, his valour all impart
 Yet mouldering mountains some- With sparkling eyes she prest him
 times I remove, [love; to her heart;
 Intruder am on friendly scenes of Praising, with smiles, his great he-
 Tho' I in friendly circles often join, roic deeds, [seeds;
 With festive sport and mirth always While others idly on my surface
 combine; Various spending each chequer'd
 For see me now where active youths hour, [pow'r
 resort, [sport; Regardless of my vast extensive
 Upon the fertile green affording And crop my sweets—consider not
 To each spectator, who with merry my bane, [same
 glee, My size unequal, shape always the
 Anxious m' various evolutions see; For unto trade and play am both
 Rebounding o'er the plain like un- consign'd, [may me find
 curb'd steed, [er speed; And with each thrifty dame yet
 Perhaps, with equal force, and great And to each town of fashion I re-
 Yet here my rustic gambols do not fort,
 end, Now see me at the avenues at court

Where I'm attended by my lord and
 grace, [the place
 And all the charming ladies near
 Here fashion reigns with her atten-
 dant pride,
 And sweet simplicity is laid aside;
 For the pedant's agglomerated rule.
 Taught to each pretty miss in board-
 ing school:
 Yet no beginning to my form you
 trace; [race;
 Nor end was ever found by human
 Though circumnavigators have ex-
 plor'd

My great extent, and o'er the ocean
 soar'd,
 To gain applause, and memorate
 their name, [they came,
 And luckily did return from whence
 Without accomplishing the grand
 design. [ern clime;
 Yet me they saw in north and south-
 For o'er each bursting surge I light-
 ly bound, [world around.
 And hourly speed my course the
 In heav'n's arched vault I have a
 place,
 And am an ornament in ev'ry face.

XI. ENIGMA (89) by *Autodidactus Ramptoniensis.*

Dear gents and Dia.'s friends, both
 learn'd and wife, [spise.
 My multifarious form do not de-
 Nor laugh, nor grin, at my odd ap-
 pearance, [bearance.
 Till my use you know I beg for-
 A little dapper fellow now I am,
 And highly priz'd both by dad and
 mam;
 A trusty servant next, that ne'er
 complains, [tongue nor brains;
 Good reason why, I've neither
 Have a wide mouth, and as the fates
 decreed, [to feed.
 On skin and bones I'm daily doom'd
 Behold m' next, amaz'd, my trans-
 migration, [m' station;
 My frame most curious, and so snug
 And tho' no fidler e'er to me should
 play, [day.
 Jig round from rising to the setting
 Of an amphib'us race I am, no
 doubt, [me out;
 For from the miry deep you drag
 But in your mirth and glee cast me
 away,
 Yet follow after laughing, ah, ha, ha.
 How hard's my fate! what reason
 to complain, [main;
 I'm forc'd to fly across the raging

A prisoner then am made, and fast
 confin'd, [mankind;
 And pressed down with burdens by
 But thanks to my kind stars, now
 raise my voice, [joice,
 While hearty fellows over me re-
 And gently touch'd by some fair
 magic wand, [to expand.
 Cause youthful hearts with love for
 Was long since wedded to a fly-flow
 dame, [great fame.
 And have, by necromancy, gain'd
 And tho' my name you may think
 a disgrace,
 I am the parent of a fruitful race.
 My first attends brave knights and
 heroes bold. [sops' gold;
 My next is wife, and picks up milk-
 My third his younger brother leads
 astray, [all day;
 My next is savage—skulks in holes
 His birth and parentage my sixth
 disdains [than brains.
 My last has got by far more tongue
 Have had three more, but not seen
 them of late, [death's gate.
 Suppose they're dead, or weeping at
 But stop—I shall not introduce them
 here, [next year.
 Therefore adieu, my friend, till the

XII. PRIZE ENIGMA (90) by *Mr. John Fildes, Schoolmaster.*

When lawless tyranny her head uprears,
 And stern oppression in a land appears;
 To check their progress, if men rise in arms,
 And with loud drums and trumpets sound alarms—
 I take my station in the martial throng,
 And lend assistance to redress each wrong;
 My head I raise, then strike the fatal blow,
 That hurls destruction on each haughty foe.
 Soon human blood's seen smoking on the plain,
 And on the ground lies heaps of warriors slain;

Whose mangled limbs a heart of stone might move,
 But cannot mine, for I dread battles love.
 Nay, such a harden'd cruel wretch am I,
 Like wicked Cain, my brother I destroy.
 With thieves and robbers company I keep,
 And go with them by night while others sleep,
 To plunder houses, honest men to cheat,
 And acts commit too shocking to relate;
 But am no foe to honesty 'tis clear,
 For in the scales of justice I appear.
 Great are my feats in battles, but when peace,
 With smiles returns, and wars and tumults cease,
 To scenes of mirth and feasting I retire,
 And get care's'd by ev'ry country 'quire;
 Yet at a joke I'm never known to laugh,
 Nor ever eat, but oft good liquor quaff.
 You'll find me too in an exalted state,
 Where four attendants on me always wait;
 But then like spies they watch my motions well,
 For if I stir an inch they quickly tell.
 Thus strange may seem, but 'tis my fate forsooth,
 To be suspected, tho' a friend to truth.
 I'm upright too—alike serve all mankind,
 And bold as brass, yet fickle as the wind.
 It sometimes happens ere I breathe my last,
 Like Joseph, I into some pit am cast;
 Like him, I'm by my brethren hated too,
 And when ensnar'd, if I for freedom sue,
 Tho' once my eloquence was such, you know,
 I soon could cause the pearly tears to flow—
 My plaintive cries and pleadings now prove vain,
 And I for life a captive must remain.
 In summer, when the sun great power displays,
 And on our vallies darts his friendly rays;
 When nymphs and swains to shun the noontide heat,
 Within some arbour find a cool retreat;
 I'm likewise seen amidst a numerous train,
 But then quite short and fleeting is my reign;
 For when the eastern sky begins to lower,
 And thunders loud foretel a coming show'r,
 I haste for shelter till the storm is o'er,
 And then you view me in that form no more,

NEW REBUSES.

I. REBUS, by Mr. John Smith, Alton Park, Staffordshire.

The goddess of youth, and the organ of sight,
 An edible root, and the source of pure light;
 A part of the face, and the thigh of a hog,
 A large bird of prey, and a favourite dog.
 The initials, when join'd, will bring to your view,
 An astronomer's name that is rivall'd by few.

II. REBUS, by Mr. Thomas Fox, of Norton.

| | |
|------------------------------------|--|
| One of th' infernal judges take, | With him, who did with crafty force, |
| And he who coaches first did make; | Deceive them with the wooden horse, |
| The giant with one hundred hands; | Th' initials join'd, will straight appear, |
| And one that wasted Trojan lands. | A thing that pleases all the year. |

III. REBUS, *by the Reverend J. Shackleton, Thornton, Yorkshire.*

One sixth of what comforts a labourer at night,
When join'd with an adverb, will furnish what's white,
Which seldom is welcome : come late, or come soon,
The world always wishes it speedily gone.

IV. REBUS, *by Mr. John Savage, Norton, near Towcester.*

He who to Jesse's son was kind, | Will name a learn'd ingenious bard,
And half a fragrant shrub when join'd, | Whose verses claim our best regard.

V. REBUS, *by Autodidactus, Ramptoniensis.*

To the whole of a curse, add one fourth of a King,
Three seventh of a breach, hereunto you must bring ;
Then a fifth of Joe Tyburn's badged relation,
Oft shew a great rogue, as any i'th' nation.

VI. REBUS, *by Mr. John Carwithen.*

To a negative, join the one fourth of a tie,
Which always is us'd when Hymen is nigh ;
Three fourths of what all experience in trade,
Tho' e'er so firm the contract it is made.
The right connected, will show to your view,
Th' name of a bard that's outrivall'd by few.

VII. REBUS, *by Olinthus Gilbert Gregory.*

First place some letters full in view, | But if one half of them be ta'en,
A thing on which we rest to shew ; | There would be fifty more remain ;
Then take two thirds of them away, | From all take letters five by theft,
There's one and fifty left I say. | And then you'll find there's nothing
left.

NEW CHARADES.

I. CHARADE, *by Mr. William Shippides, Normanton on the Wolds.*

Grant me my first, in the redeemer's love,
O heaven ! and I no more e'er wish to prove ;
Behold my next on yonder craggy steep,
Where fullen waves in rude confusion sweep.
My whole has been esteem'd much of late,
And oft is aim'd at by the rich and great.

II. CHARADE, *by Mr. John Carwithen.*

Young Harry to Mary my first did present,
In return of my second, he was well content ;
My whole would displease the chaste wives of this time,
Tho' Sarah gave me, and ne'er thought it a crime.

III. CHARADE, *by Mr. John Savage, Norton, near Towcester.*

Hark my first how loudly roaring, | When the spring with all her treasures
When rude Æolus rends the grove ; | Visits Albion's fruitful Isle ;
To fond parents how endearing, | Then my whole dispensing pleasures
How my next doth win their love. | Makes each hill and valley smile.

IV. CHARADE, *by Mr. Benjamin Kemp, Farnsfield.*

My first is trampled in the mire, | My whole attends at the levee,
Yet bears our gracious Queen ; | The masquerade and ball ;
My second's rich as Great Mogal, | Ladies your humble servant he
Yet as a beggar mean. | Obedient at your call.

V. CHARADE, *by Mr. John Smith, Alton Park, Staffordshire.*

My first's a passage o'er my second, as quickly you will find ;
My whole is by most people reckon'd, a wealthy trading town.

VI. CHARADE, by Mr. John Jackson, Bilston.

My first's a pledge of mutual love, my next its emblem fair,
My whole delighted, seeks the grove, or cuts the liquid air.

VII. CHARADE, by Mr. James Frost.

My first lives by plunder its known, which robs my whole of its store,
My second inureth my first, while m'whole makes my first be no more.

VIII. CHARADE, by Mr. Daniel Sheridan.

| | |
|----------------------------------|--|
| My first the creation sustains, | Ah! Laura my whole to deny, |
| In unty friendship and peace; | Was cruel of you to your slave |
| Around my gay second the swains | This poor heart that lov'd none beside |
| T'learn they will eagerly press. | Will shortly find rest in the grave. |

I. QUERY, by Mr. Robert Cartliss.

In hens, geese, and other tame birds hatching their young, the little animal in embryo at the time it should come forth into the world is frequently kept a prisoner and deprived of its life by means of the surface, or some part of the surface of its body being cemented to the shell; required a remedy for the preservation of the young.

II. QUERY, by Mr. John Jackson, Bilston.

What is the best antidote for a despairing Lover?

III. QUERY, by Mr. Benjamin Kemp.

What is the meaning of the prophet Hosea, when he says,
Ephraim is a cake not turned, see Chap. 7th, Verse 8th.?

IV. QUERY, by Mr. Thomas Varley, Schoolmaster, in Warley.


How are we to understand the words of our Lord mentioned in the last Chap. of the First Book of Kings, v. 23.?

V. QUERY, by Mr. John Carwithen.

How can we account for the Justice, and mercy, of God, in requiring the blood of all the prophets, of one generation; see LUKK, ch. II, v. 49, 50, 51.?

Remarks to Correspondents.—Mr. D. Sheridan's letter (of Bilston) did not come to hand till October last, it contained ingenious answers to the 1, 4, 6, 7, 8, 9, 10, 12, 13, & 16 questions; and general answers to the Enigmas, Rebuses, Charades, &c. Also Mr. Jackson's letter (of Bilston) come to hand at the same time.

The Editors wish that gentlemen, in future, would write their mathematical and poetical pieces, &c. in such a manner that they may be separated from each other. And also intreat them to avoid writing their mathematical questions in poetry as much as possible. And likewise send answers to whatever they propose. They also with pleasure return thanks to all their kind contributors, still intreating them for a continuance of their valuable favours.

 The Prizes have been determined by lot as follow.—For the Prize Question, to Mr. James Ashton, of Harrington, near Liverpool, 8 Diaries; and for answering the greatest number of questions, to Mr. John Knowles, of Liverpool, 6 Diaries; 2d, for the Prize Enigma, to Erasmus Shingstone, 6 Diaries; 3d, for the General Answer to the Enigmas, to Singletoniensis and Mr. Benjamin Kemp, of Farnsfield, 6 Diaries each; 4th, for the General Answer to the Rebuses, Charades, &c. to Mr. John Carwithen, 6 Diaries;—all of whom will please to send for them to Mr. Pearson, Printer, in Birmingham.

ANSWERS to the MATHEMATICAL QUESTIONS.

1. QUESTION (112) answered by Mr. John Knowles, of Liverpool.

Const. On CD the given radius L , describe a semicircle, apply $FE = \frac{1}{2}L \perp DC$, join DE, from C through E draw AC, such that $AC^3 : \text{given solid (480)} :: CE^2 : CD \cdot ED$. On A erect $AB \perp AC$ to meet CD continued in B, and ABC is the Δ required.

Demon. DE and EC are evidently the sine and cosine of $\angle C$, and $DE \cdot EC = DC \cdot FE = \frac{1}{2}L^2$ (conf.). Also, by conf. $AC \times AC \cdot CD \div CE \times AC \cdot ED \div CE = 480$. But by sim. Δ 's AC. CD \div CE = CB, and AC \cdot ED \div CE = AB \therefore AC \cdot CB \cdot AB = 480.

Calc. By the property of the circle $DC - DF = FE^2$; whence, $DF = \frac{1}{2}L$, $FC = \frac{2}{3}L$, $DE = \frac{4}{5}L$, $EC = \frac{3}{5}L$; and by conf. $AC = \sqrt[3]{480}$. $CE^2 \div CD \cdot ED = \sqrt[3]{216} = 6$; and, because CE, ED, and DC, are as 3, 4, and 5; \therefore AC, AB, and BC, are 6, 8, and 10; and the area = 24.

The same, by Wm. Burdon, Acafter Malbis, near York.

The square of the sine + the square of the cosine is always = to the square of the radius; and their rectangle in the present case is $\frac{1}{2}L^2$, therefore from the square = 1, take twice the rectangle = $\frac{2}{3}$, and the square root of the diff. is the diff. of the sines = $\frac{1}{5}$. Again to the square of the radius 1 add twice the rectan. = $\frac{2}{3}$, and the square root of the sum is the sum of the sines = $\frac{4}{5}$; half the diff. added to, and subtr. from half the sum gives, 8, and 6 the nat. sines of the two angles: Hence $\sqrt[3]{48} : \sqrt[3]{480} :: 1 : 10$ the hypotenuse, and the two legs are 6 and 8.

Remark. This prob. may easily be constructed from the 30th of Simpson's Alg. pa. 340, 5th edit.

Or thus by Mr. John Rowbottom, of West Hallam, Derbyshire.

If any two indefinite lines make a right \angle at A (see the above fig.) and there be taken $AC = 3$, $AB = 4$, and CB joined this Δ will be sim. to the required one; for CB will be 5, and sine $\angle C = \frac{4}{5}$, and sine $\angle B = \frac{3}{5} \therefore \frac{4}{5} \cdot \frac{3}{5} = \frac{12}{25}$ the given rectangle by the ques. hence the sides are 6, 8, and 10, and the area = 24. W.W.R.

Otherwise by Mr. James Ashton, of Harrington.

Put p = the given product of the three sides = 480; r = the rect. of the sines = $\frac{1}{2}L^2$; and x = the hypo. then $\frac{p}{x}$ = rectan. of the

the two legs = double the area; also, as 1 (R.) : $x^2 :: r : r \cdot x^2$
 = double the area $\therefore r \cdot x^2 = \frac{L}{2}$, and $x^2 = \frac{L}{r} = 1000$, whence $x =$
 10 , and $\frac{L}{2x} = 24 =$ the area, and the sides are 6, 8, and 10 re-
 spectively.

True and ingenious Solutions were also given by Mr. Brookes, Am-
 Zythum the Proposer, Mr. Richard Elliot, Mr. Olinthus Gilbert Gre-
 gory, Mr. John Brown, Mr. James Stevenson, Mr. R. Simpson, Mr.
 Abraham Moore, junior, Mr. Thomas Varley, Mr. Thomas Simpson
 Evans, Mr. John Hawkes, Mr. W. Smith, Mr. William Eaton, junior,
 and Mr. Erasmus Slingstone.

II. QUESTION (113) answered by Mr. Knowles, Liverpool.

Construction. Make CE to EA (the given
 line = 100) as 3 to 2, erect ED and AB \perp
 EA; make ED such that CE . ED may be =
 twice the given rectangle, and through C and C
 D draw CB to meet AB in B, and DE AB
 is the trapezium required. — For by conf. CE : AE :: 3 : 2 \therefore
 CE : CE + AE :: 3 : 5 :: ED : AB by sim. Δ 's. Also EC .
 ED as req. by construction. — Calc. CE = $\frac{3}{5}$ AE = 150, DE =
 $2 \times$ given area \div CE = $16\frac{2}{3}$, AB = $\frac{5}{3}$ ED = $26\frac{8}{9}$, and the area
 of the trapezium = $\frac{1}{2}$ DE + $\frac{1}{2}$ AB . EA = $2151\frac{1}{9}$.

The same by Mr. Richard Elliot, of Liverpool.

Let ABDE be the trapezoid, and the sides BD, AE produced
 to meet at C, forming the triangle ABC (see the above fig.)
 Then there is given the area of the triangle CDE = 1210, and
 the ratio of AB to DE; hence by similar triangles, as $3^2 : 5^2$
 $:: 1210 : 3361\frac{1}{9}$, = area of Δ ABC, and $3361\frac{1}{9} - 1210 = 2151\frac{1}{9}$
 = area of ABDE, as required.

Solutions to this question were also given by Juvienſis the Proposer,
 Messrs. Brookes, Gregory, Stevenson, Simpson, Moore, junior, Willos
 Hostman, Hawkes, Ashton, Woollin, Blackwell, Eaton, junior, and
 Langdon—Other answers were sent, but not right.

III. QUESTION (114) answered by Mr. James Stevenson, Heath,
 near Chesterfield.

The Proposer says, this question was not properly proposed,
 owing to the omission of the words, "inscribed in a circle."—
 Let ABCD (conceive a fig. to be drawn) be the trapezium; put
 $a = 100 \sqrt{105}$, $d = 5$, and assume $x + \frac{1}{2}d$, $x + \frac{1}{2}d$, $x - \frac{1}{2}d$,
 and $x - \frac{1}{2}d =$ AB, BC, CD, and DA, respectively; then per
 corol. 5, pa. 73, of Dr. Hutton's Mensuration, 1st edi. the square
 root of $x + \frac{1}{2}d \cdot x + \frac{1}{2}d \cdot x - \frac{1}{2}d \cdot x - \frac{1}{2}d = a$; which squared
 and transposed gives $x^4 - 2\frac{1}{2}d^2 x^2 = a^2 - \frac{9}{16}d^4$; solved by qua-
 dratics $x = \sqrt{\frac{5}{4}d^2 + \sqrt{a^2 + d^4}} = 32\frac{1}{2}$ in this case; consequent-
 ly the sides AB, BC, CD, and DA, are = 40, 35, 30, and 25
 respectively. The



The same by Casia Broomwell.

This quest. is not limited, unless two of the sides make a right \angle , or the trapezium can be inscribed in a circle; therefore, Let $AEDB$ be the trapezium (see Mr. Knowles's fig. above) draw EB ; EAB a right \angle , call ED, x ; $EA, x+5$; $AB, x+10$; and $BD, x+15$; then $EB = \sqrt{2x^2 + 30x + 125}$, and (by cor. 2, prop. 8, Emerson's Geo.) we have $\frac{1}{4} \cdot BD + ED)^2 - EB^2 \times \frac{1}{4}$.

$$EB^2 - BD \cdot ED)^2 = \text{the area of the } \triangle EDB = \frac{\sqrt{2x^2 + 30x + 125} \cdot x^2 - 2500}{2}$$

and $\frac{x^2 + 15x + 50}{2} = \text{area of the } \triangle EBA$, hence by question,

$$\frac{\sqrt{2x^2 + 30x + 125} \cdot x^2 - 2500}{2} + \frac{x^2 + 15x + 50}{2} = 100\sqrt{105}; \text{ reduced,}$$

and brought into numbers is $x^2 + 15x = 1000$; solved $x = 25$, and the sides are 25, 30, 35, and 40. W.W.R.

True solutions were also given by Messrs. Elliot, Gregory, Bardon, Moore, Wilos, Hostman, Simpson, Evans, Hawkes, Ashton, Knowles, Blackwell, Eaton, Longton, Juvenelens, Littlewood, and Young.

IV. QUESTION (115) answered by Mr. John Knowles, Liverpool.

Put r = the longer arm, s = the shorter, x = the given weight, w = its counterpoise on r ; v its counterpoise on s . Then, per

Mecha. $xr = ws$; and $vr = sx$; from the former $x = \frac{ws}{r}$, r

$$= \frac{ws}{r}, w = \frac{xr}{s}, s = \frac{vr}{x}; \text{ from the latter } x = \frac{vr}{s}, r = \frac{xs}{v}, v = \frac{xs}{r}, s$$

$$= \frac{vr}{x}. \text{ Consequently } \frac{ws}{r} = \frac{vr}{s}; \text{ hence } w = \frac{v r^2}{s^2}, s = \sqrt{\frac{v r^2}{w}}, r =$$

$$\sqrt{\frac{w s^2}{v}}, v = \frac{w s^2}{r^2}. \text{ Also, } \frac{ws}{r} = \frac{xs}{v}; \text{ hence, } w = \frac{x^2}{v}, v = \frac{w^2}{x}, x$$

$= \sqrt{wv}$: By these general theorems many pretty questions may be solved.

Exam. Let $x = 48, r = 6\frac{6}{7}, s = 5\frac{1}{7}$; then w

$$= \frac{w^2}{x} = 64, \text{ and } v = \frac{v^2}{s} = 36. \text{ Answer.}$$

Exam. 2d. $w = 16, v = 9$; then $x = \sqrt{wv}$

$$= \sqrt{144} = 12, \text{ the true weight. — Otherwise. By Mecha. } 6\frac{6}{7} : 5\frac{1}{7} :: 48 : 36 \text{ the counterpoise on the longer arm; and } 5\frac{1}{7} : 6\frac{6}{7} :: 48 : 64 \text{ the counterpoise on the shorter arm.}$$

The same by Mr. Brookes, of Leeds.

Weights suspended on a lever, must be reciprocally as the lengths of the arms, in the case of an equilibrium. Therefore

$$6\frac{6}{7} : 48\text{lb.} :: 5\frac{1}{7} : 64\text{lb.} = \text{what the goods weigh when suspended on the longer arm; also } 5\frac{1}{7} : 48\text{lb.} :: 6\frac{6}{7} : 36\text{lb. when suspended on the shorter arm,}$$

The

Or thus, by Mr. R. Simpson, of Bath.

Suppose AB the beam, and C the center of motion, or point about which the beam and scales turn. Then since the weights are reciprocally as the distance of their points of suspension from the center of gravity, it will be as $5\frac{1}{7}$ (BC) : $6\frac{6}{7}$ (AC) ::

48lb. the true weight of the goods : $\frac{48 \times 6\frac{6}{7}}{5\frac{1}{7}} = \frac{48^2}{36} = 64$ lb. the

weight of the goods when suspended at A, and as $6\frac{6}{7}$: $5\frac{1}{7}$:: 48 : 36lb. the weight of the goods when suspended at B.

Ingenious solutions were also given by Mess. Elliot, Gilbert Gregory, Burdon, Stevenfon, Varley, Hawkes, Ashton, Eaton, jun. Langdon, R. Sutton of Great Yarmouth, and John Rowbottom.

V. QUESTION (116) answered by Mr. John Rowbottom.

From the given points D, E, F, drop the \perp 's DR, DS, EG, ET, FW, FU; then in the given $\triangle ABC$ are all the sides given to find the L 's; hence the $\angle EBG = 29^\circ. 57'. \angle DAR = 23^\circ. 44'$ and $\angle FCW = 36^\circ. 59'$. from whence

as $EB = AD = FC = 6$ by the ques.

$GE = ET = 2.9952$, $DR = DS =$

2.3505 , and $FW = FU = 3.6099$; also

$EG = BT = 5.1989$; $AR = AS =$

5.5204 ; and $CW = CU = 4.7925$;

hence $GR = 9.2806$; also UT and SW

are found, then the space $DRGE =$

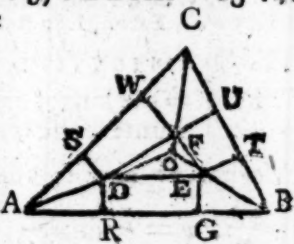
$\frac{RG}{2} \cdot KD + GE = 24.8061$; also $ETUF = 16.5412$, and

$WFSD = 22.9091$; also the space $GETB = GB \cdot GE =$

15.5719 , $CW FU = 17.3007$; $ASDR = 12.9758$; then the

triangle $ABC - ASDETBA - TEFDSCT = \triangle DEF =$

19.655 . W.W.R.



The same answered by Mr. Olinthus Gilbert Gregory, Yaxley, Huntingdonshire.

From the sides given the angles are found to be $73^\circ. 58'. 58''$, $59^\circ. 53'. 23''$, and $46^\circ. 7'. 39''$. Mr. Emerson has demonstrated, that if lines bisecting the angles of a triangle be continued, they

will meet in a point O (see the preceding fig.) within the triangle: Hence the angles at O are easily found, namely, $\angle AOB =$

$126^\circ. 59'. 29''$, $\angle BOC = 119^\circ. 56'. 41\frac{1}{2}''$, and $\angle COA =$

$113^\circ. 3'. 49\frac{1}{2}''$: by the help of these we discover $BO = 12.49858$,

$AO = 9.80728$, and $CO = 8.13796$; from each of these take 6

and there remains $EO = 6.49858$, $DO = 3.80728$, and $FO =$

2.13796 . Then $EO \times OD \times \frac{1}{2}$ nat. sine of $\angle AOB = 9.852$

the area of the $\triangle DOE$; $EO \times OF \times \frac{1}{2}$ nat. sine of $\angle COA$

$= 6.019$, the area of the $\triangle FOE$, and $FO \times OD \times \frac{1}{2}$ nat. sine

of $\angle BOC$.

$\angle AOC = 3.744 = \text{area of } \triangle DOF$; consequently 19.615 their sum, is the area of the $\triangle DEP$. W. W. R.

This question was also answered by Messrs. Brookes, Elliot, Bardon, Stevenson, Varley, Hawkes, Ashton, Knowles, Eaton, Langdon, Munro, Juveniensis, Amo, Zythum, Trueman, Blackburn, Woodhouse, Bradbury, Lock, Lovet, Rover, and Singleton.

VI. QUESTION (117) answered by Mr. Wm. Eaton, jun. Sutton, o' th' Hill, Derbyshire.

Put s and c = the sine and cosine of half the sum of the arcs, x and y = sine and cosine of half their diff. then will $sy + cx$ and $cy - sx$ = sine and cosine of the greater arc; $sy - cx$ and $cy + sx$ = sine and cosine of the lesser; then per ques. $3sy - 3cx = sy + cx \div cy - sx = \text{tang. of the greater arc}$
 $\therefore y = \frac{3sc - cx}{3x + s}$; and $x^2 + y^2 = 1$ (rad.)² in which put the value of y , and reduced $x = .2306 = \text{the sign of } 13^\circ. 20'$. \therefore the greater arc = $50^\circ. 50'$. and the less $24^\circ. 10'$. as required.

The same answered by Mr. Ashton, of Harrington, the proposer.

Put t = tangent of 15° . and x = tang. of the greater arc, then $\frac{1}{x} = \text{its cotang.}$ and $\frac{x+t}{x} : 1 (R) :: \frac{1-tx}{x} : \frac{1-tx}{x+t} = \text{tangent of the less arc}$; and (putting $1+t^2 = s$) $\frac{\sqrt{s+sx^2}}{x+t} = \text{its secant}$; then as sec. : tang. :: rad. : sine = $\frac{1-tx}{\sqrt{s+sx^2}}$; hence, by the question

$3 - 3tx \div \sqrt{s+sx^2} = x$. $\therefore sx^4 + s - 9t^2 \cdot x^2 - 18tx = 9$; which equation resolved, $x = 1.2278643 = \text{tang. of } 50^\circ. 50'. 23\frac{1}{2}''$. which taken from 75° . leaves $24^\circ. 9'. 36\frac{1}{2}''$. and the sine of this $\times 3 = 1.2278649$.

Otherwise, by Mr. John Rowbottom, of West Hallam.

Suppose the greater arc to be $50^\circ. 50'$. then the less is $24^\circ. 10'$. the tang. of the greater is 1.2275786 ; $\frac{1}{3}$ of which is $.4091928$; and the sine of the less is $.4093923$, and the error is $.0001995$ too little. Again let the greater arc be $50^\circ. 51'$. its tang. is 1.2283081 , $\frac{1}{3}$ of which is $.409436$, and the sine of the less $24^\circ. 9'$. is $.4091269$; the error is $.0003091$ too big, then by trial and error $1.2283081 - 1.2275786 \times .0001995 \div .0001995 + .0003091 = .0002881$; hence $1.2275786 + .0002881 = 1.2278647$, the tang. of $50^\circ. 50'. 23''. 32'''$. the greater arc; and $24^\circ. 9'. 36''. 28'''$. is the less. W. W. R.

Or, otherwise thus by Mr. Richard Elliot.

Let $m = \text{tang. of } 75^\circ$. and put $x = \text{the required sine, radius 1}$; then $3x = \text{required tangent by the question, and by trigo-}$

nometry $\frac{m-3x}{3mx+1} = \frac{x}{\sqrt{1-x^2}}$; this equation reduced, &c. $x = 40926 = \text{fine of } 24^\circ. 9\frac{1}{2}'$. and this taken from 75° . the remainder $= 50^\circ. 50\frac{1}{2}'$. is the arc whose tangent $= 3$ times the fine of $24^\circ. 9\frac{1}{2}'$.

Solutions were also given by Messrs. Brookes, Gregory, Burdon, Stevenson, Simpson, and Knowles.

VII. QUESTION (118) answered by *Cassia Broomwott*.

If the 1st given equation be multiplied by $y^{\frac{1}{3}} + z^{\frac{1}{2}}$; and divided by $y^{\frac{5}{3}} + z^{\frac{5}{2}}$, the quotient will be equal to the 2d given equation, that is, $46431924 \times \frac{y^{\frac{1}{3}} + z^{\frac{1}{2}}}{y^{\frac{5}{3}} + z^{\frac{5}{2}}} = 28644$, or $y^{\frac{1}{3}} + z^{\frac{1}{2}} \times$

$1621 = y^{\frac{5}{3}} + z^{\frac{5}{2}}$. But the 2d equa. is evidently $= \frac{y^{\frac{1}{3}} + z^{\frac{1}{2}}}{5} - y^{\frac{5}{3}} - z^{\frac{5}{2}}$

$= 28644$; or $y^{\frac{1}{3}} + z^{\frac{1}{2}} = \frac{143220}{5} = y^{\frac{5}{3}} + z^{\frac{5}{2}} = 1621 \times y^{\frac{1}{3}} + z^{\frac{1}{2}}$,

therefore $y^{\frac{1}{3}} + z^{\frac{1}{2}} = 1621 \times y^{\frac{1}{3}} + z^{\frac{1}{2}} = 143220$; solved $y^{\frac{1}{3}} + z^{\frac{1}{2}} = 11$, and $y^{\frac{5}{3}} + z^{\frac{5}{2}} = 17831$. Now there is given the sum

11, and the sum of the 5th powers 17831 of $y^{\frac{1}{3}} + z^{\frac{1}{2}}$ to find y and z , which (by prob. 48, Simpson's Algebra) $= 64$, and 49 . Substitute $\sqrt[3]{64}$ and $\sqrt{49}$ for $\sqrt[3]{y}$ and \sqrt{z} in the third given equation, and it becomes $7+4^3 + 7+8^3 + 7+12^3$, &c. to x terms $=$ (by Simpson's Alg. page 208) $16x^4 + 144x^3 + 478x^2 + 693x = 4774856$ (by quest.) solved $x = 16$. Hence his age is 16 years, 7 weeks, 2 days, 16 hours. W.W. R.

This question was also answered by Mr. John Rowbottom, the Professor, in a curious manner. Some other Gentlemen sent solutions, but they do not agree with the above.

VIII. QUESTION (119) answered by *Mr. John Brookes*.

Put the content $= 160$ gallons $= 45120$ inches $= a$, $2 + 2\frac{1}{2}$ double the tangent of $67\frac{1}{2}$ degrees $= b$; and one side of the octagonal base $= x$, then $bx^2 =$ the area of the base; and $\frac{a}{bx^2}$ $=$ the altitude; therefore the whole internal superficies will be expressed by $bx^2 + \frac{8a}{bx^2}$, which by the question is a minimum.

Now if this expression be put into fluxions, and reduced, we get

$x = \frac{4a^{\frac{1}{3}}}{8z^{\frac{1}{3}}} = a.3 - 2\sqrt{2}^{\frac{1}{3}} = 19.782113$; the depth $= \frac{ba^{\frac{1}{3}}}{16} = \frac{1}{2}$.

$a.1 + \sqrt{2}^{\frac{1}{3}} = 23.8795$, and the area of the base $= 2. a^2. \sqrt{2} - 11^{\frac{1}{3}}$
 $= 1889$

= 1889'517104. Now, put a = the altitude, b = the area of the base, $m = 32\frac{1}{2}$ feet, n = the area of the aperture, and $S = 5$ minutes = 300 seconds. Then by art. 1, Dr. Hutton's Miscellanea Mathematica $\frac{2b\sqrt{a}}{n\sqrt{m}} = S$; hence $n = \frac{2b\sqrt{a}}{S\sqrt{m}} = 3'133'132$ inches, the area of the aperture, as required.

The same answered by Mr. James Stevenson, the Proposer.

First, put $a = 160 \times 282$, $c = 4'828427$ the factor for an octagon, and x = each internal side of the base; then cx^2 = the area of the base; and $\frac{a}{cx^2}$ = the altitude, or depth; also $\frac{a}{cx^2} \times 8x = \frac{8a}{cx}$ = the area of the sides, and by the ques. $cx^2 + \frac{8a}{cx} = a$ min. fluxed, &c. $x = \sqrt[3]{\frac{4a}{c^2}} = 19'78211$, and $\frac{a}{cx^2} = 23'87912$ inches the depth. Secondly, put d = the depth, $b = 1889'517$ the area of the base, $t = 60 \times 5 = 300$ the second, the time of exhaustion $m = 32\frac{1}{2}$ feet = 386 inches, and n = the required area of the aperture; then by reducing the theorem on pa. 5th of Dr. Hutton's Miscellanea Mathematica, we have $n = \frac{2b}{t} \sqrt{\frac{d}{m}} = 3'133105$ inches.

And nearly thus is the answer given by Messrs. R. Elliot, Gregory, Wm. Danis, A. Moore, jun. J. Hawkes, J. Ashton, Knowles, Munro, Juveniensis, Lock, and Rover.

The same otherwise answered by Mr. John Rowbottom, West Hallam.

Let AOB represent $\frac{1}{8}$ of the top of the vessel, $BI = OI = x$, $\frac{160'282}{8} = a$; then $x\sqrt{2} = OB = OA$ and $\frac{x^2}{\sqrt{2}} = \text{area AOB}$;

hence $\frac{a\sqrt{2}}{x^2} = \text{depth of the vessel}$, also

$AI^2 + BI^2 = AB = x\sqrt{4-2\sqrt{2}}$, which

drawn into $\frac{a\sqrt{2}}{x^2} = \frac{2a\sqrt{2-\sqrt{2}}}{x} = \text{area of}$

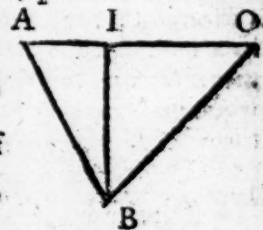
one of the sides, to which adding 2 ABO,

gives $\frac{2a\sqrt{2-\sqrt{2}} + x^3\sqrt{2}}{x} = \frac{1}{8}$ of the in-

ternal surface a minimum, fluxed, &c. $x = \frac{a\sqrt{2-\sqrt{2}}}{\sqrt{2}} =$

14'50589, and the depth is 37'90577 inches, which call b , 193 inch. = d ; a = the area of the orifice, x = any variable height of the water above it; and c = area of the top of the vessel;

then by the laws of hydrostatics $\frac{a\sqrt{2dx}}{c} = \text{the velocity of de-}$



scant along the axis of the vessel, by which dividing $-x$ gives $\frac{-x}{a\sqrt{2dx}} = t$, the correct fluent of which when $x=0$ is $\frac{c}{2a}\sqrt{\frac{b}{2d}} =$

t ; hence $a = \frac{c}{t} \sqrt{\frac{2b}{d}} = 2.486$ inches the area of the aperture.

W. W. R.

This ingenious young Gentleman finds the area of the aperture otherwise thus: By (prop. 69, Emerson's Mecha.) the time in which a cylinder of water whose base is a , and height b , will run out, is equal that in which a heavy body will fall through $\frac{1}{2}b$, if the vessel be always kept full, that is $\sqrt{a} : 1'' :: \sqrt{\frac{1}{2}b} : \sqrt{\frac{b}{2d}}$; then $ab : \sqrt{\frac{b}{2d}} :: bc : \frac{c}{a} \sqrt{\frac{b}{2d}}$ = the time the vessel will empty itself with the first velocity, which (by page 139, Emerson's Flux.) is $= \frac{1}{2}t$; hence $a = \frac{c}{t} \sqrt{\frac{2b}{d}}$; as before.

Mr. William Eaton, jun. also gave an answer.

IX. QUESTION (120) answered by Mr. Joseph Waters, of Graves Lane, the Proposer.

If any variable dividend answering the conditions of the question is put x , there is given by the property of simple division $\frac{x-a}{n}$, and $\frac{x-b}{n+1}$ = whole numbers, and if the difference of these $\left(\frac{x-a}{n} - \frac{x-b}{n+1} = \frac{x-na-a+nb}{nn+n}\right)$ is expounded by 0, 1, 2, 3, 4, &c. there arises $x = n \times \overline{a-b+a}, n \times \overline{n+1+a-b+a}, n \times \overline{2n+2+a-b+a}, n \times \overline{3n+3+n-b+a}, n \times \overline{4n+4+a-b+a},$ &c. the first of which $(n \times \overline{a-b+a})$ is the value required. But although this method of solution brings out the true conclusion in a concise manner, it is not sufficiently comprehensive to be given alone, since there can be no reasoning from the data, whereby to determine, why the difference of the original quantities ought to be chose in preference to their sum, or the sum or difference of any multiples thereof, if not being assuredly known but by inspection or trial, that after deducting the quantity $\frac{x-b}{n+1}$ from $\frac{x-a}{n}$, the coefficient of x would be reduced to unity, or the equation itself into a manageable form. In order therefore to confirm what is already delivered, assume $\frac{x-b}{n+1} = v$, and let the value of x thus found, be substituted in $\frac{x-a}{n}$; moreover from the resulting equa. $(v + \frac{v+b-a}{n} = \text{an integer})$ let the integral part (v) be rejected, and the remainder $(\frac{v-a+b}{n})$ put =

w , so shall v be found $=nw + a - b$, and $x (= \overline{n+1} \cdot v + b)$
 $= n \times nw + w + a - b + a$; in which w may be equal to
 nothing, or any whole number whatever.

Corollary. When b is supposed the greatest remainder, $n \times$
 $a - b + a$, becomes negative, and will require correcting by the
 addition of $n \cdot n + n$; the least dividend on that supposition being
 $n \cdot n + 1 + a - b + a$; agreeable to what is derived from the gen-
 eral expression $n \times nw + w + a - b + a$; when $w = 1$.

The same answered by Mr. Joseph Woollin, of Smalley, near Derby.

Let n , a , and b , be $= 3, 2$, and 1 ; and $x =$ the least whole
 number; then $\frac{x-2}{3}$, and $\frac{x-1}{4} =$ whole numbers by the ques.
 put $\frac{x-2}{3} = P$, then $x = 3P + 2$, which value of x subst. in
 the other fraction, gives $\frac{3P+1}{4}$ a wh. number, also $\frac{4P}{4}$ a whole
 num. $\therefore \frac{4P}{4} - \frac{3P+1}{4} = \frac{P-1}{4} =$ whole num. $= r$; hence $P = 4$
 $r+1$; make $r = 0$, then $P = 1$, whence $x = 5$ the whole num-
 ber required.

Or thus by Mr. Olinthus Gilbert Gregory, Yaxley.

Let x be the number required, and let a whole number be
 denoted by wh. then by the ques. $\frac{x-a}{n}$ and $\frac{x-b}{n+1}$ are each $=$ wh.
 By putting $\frac{x-a}{n} = q$, we shall have $x = nq + a$, which being
 substituted for it in the second fraction gives $\frac{na+a-b}{n+1} =$ wh. But
 $\frac{nq+q}{n+1}$ is also $=$ wh. Therefore $\frac{nq+q}{n+1} - \frac{na+a-b}{n+1} = \frac{q-a+b}{n+1} =$ wh.
 which put $= s$, then $q = n+1 \cdot s + a - b$; and as the value of
 $a - b$ is positive, we may put $s = 0$, then is $q = a - b$, and $x =$
 $nq + a = n \cdot a - b + a$; or the same conclusion might have been
 derived from other principles.

For an example, let us suppose $n = 14$, a and $b = 6$ and 3 the
 remainders; then $n \cdot a - b + a = 14 \times 3 + 6 = 48$ the least
 whole number, which divided by 14 has 6 remains, but divided
 by 15 has 3 remains. Again, suppose $n = 25$, a and $b = 14$ and
 9 ; then $n \cdot a - b + a = 25 \times 5 + 14 = 139$, the least whole num-
 ber, which divided by 25 has 14 remains, but divided by 26 has
 9 remains.

True and ingenious solutions were also given by Messrs. John Brookes,
 Richard Elliot, Wm. Burdon, James Stevenson, R. Simpson, A. Moore,
 John Hawkes, James Ashton, John Knowles, Wm. Eaton, jun. and
 John Rowbottom.

X. QUESTION (121) answered by Mr. Wm. Marsden, Netherhurst, Derbyshire, the Proposer.

In every true octave is contained five tones, and two semitones, making in the whole 12 semitones, or half notes. Now let $a = 12$, $x =$ greater part, then will $a - x =$ the lesser, and $a - x^2 \times x^4$, or $a^2 x^4 - 2 a x^5 + x^6 = a$ max. in fluxions $4 a^2 x^3 - 10 a x^4 + 6 x^5 = 0$, hence $6 x^2 - 10 a x = -40 a$, and $x^2 - \frac{10 a x}{6} = -\frac{4 a}{6}$; put $2 m = \frac{10 a}{6}$, and $n = -\frac{4 a}{6}$, then $x^2 - 2 m x = -n$; by compleating the square $x^2 - 2 m x + m^2 = m^2 - n$, and $x = m \pm \sqrt{m^2 - n} = 8$, which is the number of semitones, or half notes contained in a lesser sixth, whose ratio is 8 : 5; and $a - x = 4$, the number of semitones in a greater 3d, whose ratio is 5 : 4 answering the conditions of the ques. as required.

The same answered by Mr. Brookes, of Leeds.

Put $a = 12$, the number of half notes in an octave; and $x =$ the greater interval; then $a - x$ the less, and by the question $x^4 \times a - x^2$ is a maximum, which being put into fluxions and reduced, we obtain $x = \frac{2}{3} a = 8$, and $a - x = \frac{a}{3} = 4$. The ratio may be had from page 10, Smith's Harmoniacs.

The same otherwise by Mr. James Ashton, Harrington, near Liverpool.

If an octave be divided into half notes, there will be thirteen different sounds, or 12 semitones included. Put $a = 12$, $x =$ the greater interval, then $a - x =$ the less; and, by the question $a - x^2 \times x^4 = a$ max. which put into fluxions, &c. gives $x = 12$, or 8; hence the greater interval contains 8 half notes, and the less 4; which is the diatonic scale, answering to $\frac{5}{3}$ and $\frac{4}{3}$ (the octave being $\frac{1}{2}$) for $\frac{5}{3} \times \frac{4}{3} = \frac{2}{3} =$ the octave; and the ratio of the lengths of the strings is 32 : 25.

Note. In the scale, $\frac{5}{3}$ answers to the lesser 6th, and $\frac{4}{3}$ the greater 3d.

Or otherwise thus, by Mr. Richard Elliot, of Liverpool.

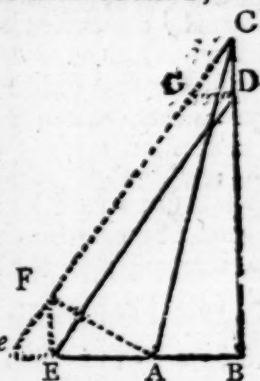
It is well known that a given line or quantity which is to be divided into two or more parts, such that their product may be a max. those parts will be in the ratio of their exponents; this being premised, the ques. in hand will be easily solved as follows: as 6 (= sum of the exponents); 12 (= semitones in an octave):: $\left\{ \begin{array}{l} 2:4 \\ 4:8 \end{array} \right\} =$ semitones in the 1st part. } Hence, the two required intervals are the major, or sharp third; and the minor, or flat sixth.

Solutions to this question were also given by Messrs. R. Simpson, John Knowles, and John Rowbottom.

XI. QUESTION

XI. QUESTION (122) answered by Mr. James Ashton.

Construction. Draw the horizontal line $EA = 8$ the given distance the ladder CA is removed from the edge of the moat at A ; at E erect the perp. $EF = CD = 4$, by the ques. then, with the radius 25, the ladder's length, and centres A and F , describe arcs cutting each other in the point C ; from C let fall a \perp to meet EA continued in B ; join AC , and make $CD = EF = 4$, and join ED ; then will AC and ED be the two positions of the ladder, AB the breadth of the moat, and BC the height of the wall. For, by continuing AE to e , and drawing DG parallel thereto, $\angle DCG = \angle EF e$, and these two triangles are equal in every respect, and similar to the triangle EDB ; also ED and FC are parallel to each other, and FC is = the length e = the length of the ladder by construction; but FC is = eG , and $eG = ED$, for $E eGD$ is a parallelogram; therefore ED is the length of the ladder.



Calculation. Draw AF , which is $= \sqrt{AE^2 + EF^2} = 2\sqrt{20}$; and the $\triangle AFC$ is isosceles (AC and FC being each 25) and all the sides known, the $\angle CAF (= \angle CFA)$ is found $= 79^\circ.41'.42''$. and the $\angle EAF = 26^\circ.33'.54''$. then their sum taken from 180° . leaves $\angle CAB = 73^\circ.44'.24''$. hence $AC : \text{rad.} :: \sin \angle CAB : BC = 24 :: \cos \angle CAB : AB = 7$.

Algebraical solutions were given by Messrs. J. Knowles, W. Eaton, jun. R. Sutton, Jas. Stevenson, and John Hawkes. It is also ingeniously constructed by Mr. John Fildes, the Proposer, and Messrs. John Brookes, R. Elliot, Wm. Burdon, R. Simpson, R. Hewett, Wm. Smith, and John Rowbottom, which we omit with much regret for want of room.

XII. QUESTION (123) answered by Mr. Joseph Saul, of Rochdale, the Proposer.

Per similar triangles, as $AD : AB :: AB : AF$, D
and $AD - AF = DF$: that is, as $AC + CB$:
 $\sqrt{AC^2 - CB^2} :: \sqrt{AC^2 - CB^2} : AC^2 - CB^2 \div C$
 $AC + CB = AC - CB$, and $AC + CB - B$
 $AC - CB = 2BC$. W.W.R.



Ingenious answers to this question are also given by Messrs. John Brookes, R. Simpson, R. Elliot, W. Burdon, J. Ashton, J. Knowles, and W. Eaton; jun.

XIII. QUESTION (124) answered by Mr. James Ashton.

Let the circle $EKHL$ represent the table, then the two ends of the glass, by its motion on the table, will perform concentric circles HE , IG , of which the vertex V , of the cone, when completed

the \angle FOG to find the perp. FG = 18 inches. Again, the versed sines nH and mG are equal to each other; therefore as FG : Fm (= 18.8496 inches per quest.) : DH : arc Dn = 20.944 inches = three times the top circumference of the glass \therefore from which its diameter at top is easily found = $2\frac{2}{3}$ inches. Lastly, we have given the diameters of the glass, and its slant height, and therefore its content is readily had = 14 cubic inches, consequently $14 \times \frac{4}{7} = \frac{56}{7} = 8$ pence the price of the glass required.

Ingenuous solutions were also given by Messrs. R. Elliot, John Brookes, Olinthus Gilbert Gregory, Thomas Simpson Evans, John Knowles, John Blackwell, Wm. Eaton, jun. and Robert Langdon.

XIV. QUESTION (125) answered by Mr. Brookes, of Leeds.

Put $\frac{n-1}{abcd, \&c.} = s$; then the given fluxion becomes $rsz^{n-2} \cdot z - sz^{n-1} \cdot z$, and the fluent of the second part is $= -s \times \text{hyp. log. of } z$. Now in order to get the fluent of the first part, put $z = v + 1$; then $\dot{z} = \dot{v}$, and $rsz^{n-2} \dot{z} = \frac{rsz^n}{z^2} - \frac{rs \cdot 1 + v^n \times \dot{v}}{1+v} = rs$ drawn into $\dot{v} + \frac{n-2}{v} \cdot v \dot{v} + \frac{n-2}{v} \cdot \frac{n-3}{2} \cdot v^2 \dot{v} + \frac{n-2}{v} \cdot \frac{n-3}{2} \cdot \frac{n-4}{3} \cdot v^3 \dot{v} + \frac{n-2}{v} \cdot \frac{n-3}{2} \cdot \frac{n-4}{3} \cdot \frac{n-5}{4} \cdot v^4 \dot{v}$, &c. and by taking the fluent of each term, we shall have rs drawn into $v + \frac{n-2}{2} \cdot v^2 + \frac{n-2}{3} \cdot \frac{n-3}{2} \cdot v^3 + \frac{n-2}{4} \cdot \frac{n-3}{2} \cdot \frac{n-4}{3} \cdot v^4 + \frac{n-2}{5} \cdot \frac{n-3}{2} \cdot \frac{n-4}{3} \cdot \frac{n-5}{4} \cdot v^5$, &c. which series will terminate when n is a whole positive number. — Now if we restore z , the whole fluent will be rs drawn into $-1 + z + \frac{n-2}{2} \cdot \overline{z-1}^2 + \frac{n-2}{3} \cdot \frac{n-3}{2} \cdot \overline{z-1}^3 + \frac{n-2}{4} \cdot \frac{n-3}{2} \cdot \frac{n-4}{3} \cdot \overline{z-1}^4 + \frac{n-2}{5} \cdot \frac{n-3}{2} \cdot \frac{n-4}{3} \cdot \frac{n-5}{4} \cdot \overline{z-1}^5$, &c. $-s \times \text{h. log. } z$.

Solutions to this question were also given by Messrs. J. Rowbottom, Knowles, and Elliot.

XV. QUESTION (126) answered by Casia Broomwott, the Proposer.

Let v, x, y , and z , represent the quantities of each sort; a, b, c, d , their respective prices per gallon, &c. f , the value or sum

given for the whole; and let $v^{\frac{m}{n}} x^{\frac{p}{q}} y^{\frac{r}{s}} z^{\frac{t}{u}}$ be a max. then $av + bx + cy + dz = f$. Put both these expressions into fluxions,

then $\frac{m}{n} v^{\frac{m}{n}-1} x^{\frac{p}{q}} y^{\frac{r}{s}} z^{\frac{t}{u}} \dot{v} + \frac{p}{q} v^{\frac{m}{n}} x^{\frac{p}{q}-1} y^{\frac{r}{s}} z^{\frac{t}{u}} \dot{x} + \frac{r}{s} v^{\frac{m}{n}} x^{\frac{p}{q}} y^{\frac{r}{s}-1} z^{\frac{t}{u}} \dot{y} + \frac{t}{u} v^{\frac{m}{n}} x^{\frac{p}{q}} y^{\frac{r}{s}} z^{\frac{t}{u}-1} \dot{z} = 0$, and

$av + bx + cy + dz = 0$, make the terms wherein the same flux,

is found equal, and $\frac{p}{q} v^{\frac{m}{n}} x^{\frac{r}{s}} z^{\frac{t}{u}} y^{\frac{s}{t}} x^{\frac{p}{q}-1} \dot{x} = b \dot{x}$, $\frac{m}{n} x^{\frac{r}{s}} y^{\frac{s}{t}} z^{\frac{t}{u}} v^{\frac{m}{n}-1} \dot{v}$

$\dot{v} = av$, $\frac{r}{s} v^{\frac{m}{n}} x^{\frac{r}{s}-1} z^{\frac{t}{u}} y^{\frac{s}{t}} \dot{x} = cy$, $\frac{t}{u} v^{\frac{m}{n}} x^{\frac{r}{s}} y^{\frac{s}{t}} z^{\frac{t}{u}-1} \dot{z} = dz$;

hence $z^{\frac{t}{u}} = \frac{a}{\frac{m}{n} x^{\frac{r}{s}} y^{\frac{s}{t}} v^{\frac{m}{n}-1}} = \frac{b}{\frac{p}{q} v^{\frac{m}{n}} y^{\frac{s}{t}} x^{\frac{p}{q}-1}} = \frac{c}{\frac{m}{n} y^{\frac{s}{t}} z^{\frac{t}{u}} v^{\frac{m}{n}-1}}$

$= \frac{d}{\frac{t}{u} v^{\frac{m}{n}} y^{\frac{s}{t}} z^{\frac{t}{u}-1}} = \frac{c}{\frac{r}{s} v^{\frac{m}{n}} z^{\frac{t}{u}} y^{\frac{s}{t}-1}}$ from which equations $bx =$

$\frac{\frac{p}{q} a v}{\frac{m}{n}}$, $cy = \frac{\frac{r}{s} a v}{\frac{m}{n}}$; $dz = \frac{\frac{t}{u} a v}{\frac{m}{n}}$, substi. these values of bx , cy ,

dz in the equa. $av + bx + cy + dz = f$, and you will obtain

$av + \frac{\frac{p}{q} a v}{\frac{m}{n}} + \frac{\frac{r}{s} a v}{\frac{m}{n}} + \frac{\frac{t}{u} a v}{\frac{m}{n}} = f$; hence $av = \frac{\frac{m}{n} f}{\frac{m}{n} + \frac{p}{q} + \frac{r}{s} + \frac{t}{u}}$, $bx =$

$= \frac{\frac{p}{q} f}{\frac{m}{n} + \frac{p}{q} + \frac{r}{s} + \frac{t}{u}}$, $cy = \frac{\frac{r}{s} f}{\frac{m}{n} + \frac{p}{q} + \frac{r}{s} + \frac{t}{u}}$, $dz = \frac{\frac{t}{u} f}{\frac{m}{n} + \frac{p}{q} + \frac{r}{s} + \frac{t}{u}}$; whence

by proportion as $a : 1 :: \frac{\frac{m}{n} f}{\frac{m}{n} + \frac{p}{q} + \frac{r}{s} + \frac{t}{u}} : v = \frac{\frac{m}{n} f}{\frac{m}{n} + \frac{p}{q} + \frac{r}{s} + \frac{t}{u}} \cdot a$;

$b : 1 :: \frac{\frac{p}{q} f}{\frac{m}{n} + \frac{p}{q} + \frac{r}{s} + \frac{t}{u}} : x = \frac{\frac{p}{q} f}{\frac{m}{n} + \frac{p}{q} + \frac{r}{s} + \frac{t}{u}} \cdot b$; $c : 1 :: \frac{\frac{r}{s} f}{\frac{m}{n} + \frac{p}{q} + \frac{r}{s} + \frac{t}{u}} : y =$

$\frac{\frac{r}{s} f}{\frac{m}{n} + \frac{p}{q} + \frac{r}{s} + \frac{t}{u}} \cdot c$; and, $d : 1 :: \frac{\frac{t}{u} f}{\frac{m}{n} + \frac{p}{q} + \frac{r}{s} + \frac{t}{u}} : z =$

$\frac{\frac{t}{u} f}{\frac{m}{n} + \frac{p}{q} + \frac{r}{s} + \frac{t}{u}} \cdot d$. W. W. R.

Mr. Knowles and Mr. Elliot answered this quest. nearly the same

Otherwise, by Mr. John Brookes, of Leeds.

It is readily discovered from Mr. Stevenson's solution (see last year's Diary) that $x = \frac{a}{10}$, $y = \frac{a}{18}$, and $z = \frac{a}{48}$; therefore

$5x = \frac{a}{2}$, $6y = \frac{a}{3}$, and $8z = \frac{a}{6}$.—Now the quantities on each side these last equations express the price of each sort of wine in shillings; (a being = 7200s.) but those on the right hand are what the proposer has composed his theorem from, for $\frac{a}{2}$ is evidently = $\frac{3a}{3+2+1}$, $\frac{a}{3} = \frac{2a}{3+2+1}$, and $\frac{a}{6} = \frac{a}{3+2+1}$.

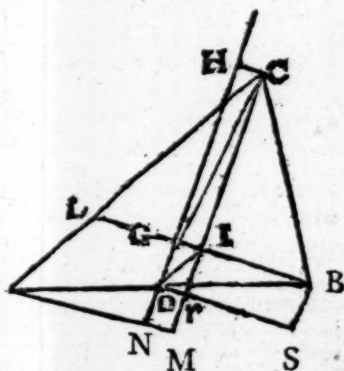
This ingenious gentleman says the same thing may be otherwise effected, thus, for it is well known that when any quantity is divided into parts, such, that the product of the powers of those parts is a max. the parts themselves will be in the direct ratio of the powers in the maximum.—Therefore, by the rule of Fellowship $3+2+1 : a :: 3 : \frac{3a}{3+2+1} :: 2 : \frac{2a}{3+2+1} :: 1 : \frac{a}{3+2+1}$ the same as before. As for the other part of the rule, it is so evident that any further illustration seems unnecessary.

Mr. Ashton, of Harrington, gave a curious investigation; which we are obliged to omit, with regret, for want of room.

Mr. Eaton, jun. says this general rule is investigated, &c. in the Ladies Diary, 1748, by Mr. J. Turner. It was also answered by Mr. J. Stevenson, in a concise manner.

XVI. or Prize QUESTION (127) answered by Cassia Broomwolt.

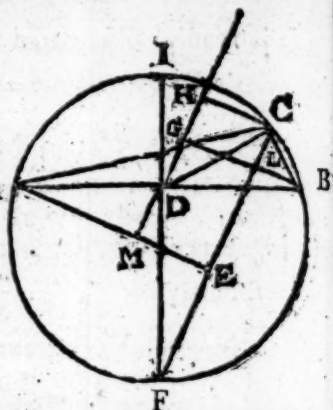
ABC is the given Δ , D the middle of the base, DH the line drawn as by ques. CH, GB \perp 's falling thereon, join DG, and from C, draw CM \parallel DH; and let fall AM \perp thereon. The \angle HDB being by construction = comp. $\frac{1}{2}$ ABC — $\frac{1}{2}$ BAC it is evident \angle GBD = $\frac{1}{2}$ diff. of the \angle 's at the base = \angle DAM, because GB is \parallel AM, hence \angle CAM = \angle GBC, for \angle CAB + 2BAM = \angle ABC; also the \angle 's M and I are right \therefore the Δ 's ACM, BCI are sim. hence AM : BI :: CM : CI; but AM = BG + CH, and CM = DH + DG, because of the \parallel 's, hence the prop. is BG + CH : BG — CH :: DH + DG : DH — DG \therefore BG . GD = DH . CH, or the Δ DHC = Δ BGD. Q.E.D.



The

The same answered by Mr. John Brookes, of Leeds, the Proposer.

Circumscribe the given triangle ABC, with the circle ACBE. Draw the diameter EDI perpen. to AB, and CF cutting BG in L; so shall CF be parallel to DH, and BLC a right angle. For by construction the $\angle IDH =$ half the diff. of the A angles at the base $= \frac{1}{2} ABC - \frac{1}{2} BAC = \angle IFC$. Again, because CF bisects the angle ACB, if AE be drawn perpendicular to CF, the triangles ACE, BCL, will be similar. Hence $CE : CL :: AE : BL$; but $CE = DH + DG$, because $DG = DM$, which is evident from the parallellism of the lines AE, BG; therefore $CL = DH - DG$, $AE = BG + CH$, and $BL = BG - CH$: Whence the proportion becomes $DH + DG : DH - DG :: BG + CH : BG - CH$; and componendo et dividendo $2 DH : 2 DG :: 2 BG + 2 CH : 2 BG - 2 CH$; or, $DH : DG :: BG : CH$; consequently the rectangle $DG \cdot BG$; or, the triangle $DHC =$ the triangle DGB . Q. E. D.



Ingenuous answers were also given by Messrs. R. Simpson, R. Elliot, Wm. Davis, R. Carlisle, J. Ashton, John Knowles, and W. Eaton, jun.

NEW QUESTIONS.

I. QUESTION (128) by Mr. Joseph Woollin, of Smalley, near Derby.

The value of x and y be pleas'd to show,

By a simple equation from what's below.*

$$\text{*Given } \frac{x^{\frac{5}{3}} - xy^{\frac{1}{2}} + yx^{\frac{2}{3}}}{121} - x = \frac{y^{\frac{3}{2}}}{121} - y, \text{ and } \frac{x^{\frac{5}{4}} - y^{\frac{6}{5}} - yx^{\frac{3}{4}}}{49} - y \\ = x - \frac{y^{\frac{1}{3}}x}{49}.$$

II. QUESTION (129) by Mr. J. Stevenson, of Heath, near Chesterfield.

Given the vertical angle equal to $50^{\circ} 50'$, and sum of the two including sides 100; to determine the triangle, when the biquadrate of half the difference of the said sides is equal to double the area.

III. QUESTION (130) by Mr. Thomas Simpson Evans, Teacher of the Mathematics, at the Grammar School, Odibam, Hants.

Two men, A and B, agreed for 2 shillings, to carry 2cwt. 2q. 12lb. of wheat 3 miles, on a pole 6 feet long. At their first setting out, the weight was 3 feet 4 inches from A; in which state they carried it 6 furlongs, where resting, they changed places, the weight continuing in the same place,

place, and carried it $1\frac{1}{2}$ mile farther, where resting again, the weight was by accident moved to 30 inches from B, in which situation it was carried the remainder of the way. How much of the money must each man receive, in proportion to his trouble?

IV. QUESTION (131) by Mr. Joseph Woollin, of Smalley.

A gentleman having a garden in form of an equilateral triangle, in the midst of which stands a conical pillar, the diameter of its base 4 feet, and solidity 100 feet, and from the summit of the solid to the angle of the garden is 20 yards.—Now he would be obliged to any young student to tell him the area of the cultivated part of the garden.

V. QUESTION (132) by Mr. John Fildes, Schoolmaster, Liverpool.

ABC is a triangular field right angled at B, the side AB being 154 yds. in which at D, 100 yards from A, stands a tree, and in the side BC there is another tree at E, 154 yds. from C; now if AE, DE, and DC be drawn, the angle ACD and AED will be equal: Required the area of the field.

VI. QUESTION (133) by Mr. John Rowbottom, West-Hallam, Derbyshire.

Four men, A, B, C, and D, undertook a bargain of work for 26 $\frac{1}{2}$ l.—Now A could finish it himself in 4 months, B in 6, C in 9, and D in 12 months. But B began to work a certain time after A, and C and D both begun together a certain time after B; when the work was finished, A received 13l. 3s. 11 $\frac{1}{2}$ d. more than C, and B and D received betwixt them 8l. 1s. 7 $\frac{1}{2}$ d. How long did A work before B begun, and B before C and D begun; what did each person receive for his work; and how long was it in finishing?

VII. QUESTION (134) by Mr. John Knowles, of Liverpool.

If from the point P, in the diameter AB of a circle continued, any line be drawn to cut the circle in C, and again in D, and DE be drawn \perp to AB, to cut the circle in E, and CE joined, then I say that CE will always cut the diam. AB in the same point G. Quere, a demonstration.

VIII. QUESTION (135) by Mr. O. G. Gregory, Taxley, Huntingdonshire.

If we admit that a musical chord, in length 20 inches, and weight 4.69097 grains, when stretched with a weight 8lbs. avoirdupois, will found the note C-fol-fa-ut; required the weight of chords of the same length and tension, which shall found the ditone, diapente, and diapacon to the above mentioned note.

IX. QUESTION (136) by Mr. Joseph Waters, of Graveslane.

To find three such cube numbers, that the product of any two of them being divided by the other, shall leave a cube number remaining.

X. QUESTION (137) by Cassia Broomwott.

I wish for a point \dagger in a garden that's square,*
To fix down a POST \parallel , that if measured it were,
From thence to each corner, the square of each line,
When added together, this sum \dagger shall define;
Likewise please to tell me, 'twill not be much pains,
The area in yards each triangle contains,
When two of the opposite lines shall explore,
Exact the proportion, as five is to four.

\dagger by geom. only
* side 160 yards
Prize Enigma
156400 yards

XI. QUESTION (138) by Mr. J. Aston, Harrington, near Liverpool.

If the wall of a house be 30 feet high, and a spout be fixed at the top thereof, of 2 $\frac{1}{2}$ feet in length from the wall; it is required to find the an-

gle it must make with the plane of the wall, so that the water may fall into a reservoir, on an horizontal plane, at 10 feet distance from the bottom of the wall.

XII. QUESTION (139) *by the same Gentleman.*

Given the ratio of the base to one of the sides of an isosceles Δ , as 1 to r , and the area of its greatest inscribed ellipsis $= a$: It is required to find the dimensions of both, and give a demonstration of the process.

XIII. QUESTION (140) *by Mr. John Brookes, of Leeds.*

Let BZ be an indefinite perpendicular to a given line AB, to which from A, draw any line APC, and take the point P such, that AC multiplied by PC may be equal to AB^2 .—Required the properties of the curve, which is the locus of P.—N. B. This question has been proposed before, but not publicly answered, that I know of.

XIV. QUESTION (141) *by Mr. John Knowles.*

Given the height of the eye, its distance from the picture, and the position of an original point, to find its perspective representation geometrically, without introducing the point of sight, or station point.

XV. QUESTION (142) *by Mr. R. Elliot, of Liverpool.*

The fluxion of the tangent of 75° is equal to twice the fluxion of the tangent of 45° . Required the investigation by a general theorem, that will exhibit the ratio of the fluxion of any tangent to that of its corresponding arc.

XVI. QUESTION (143) *by Mr. John Brookes.*

Given the difference of the sides, the difference of the segments of the base made by the perpendicular, and the radius of the inscribed circle to construct the triangle.

XVII. QUESTION (144) *by Mr. Richard Elliot.*

Suppose the length, breadth, and depth of a cistern to be 16 (x) 12 (y) and 20 (z) feet respectively, and that there are 2 circular holes (each 1 inch in diameter) one placed in the bottom, the other in the side close to the bottom. Now if it was filled with water, and both holes open in what time will the whole be exhausted, supposing the velocity equal that generated by gravity through the whole height above the apertures.

XVIII. Prize QUESTION (145) *by Cassia Broomwall.*

In the midst of a gentleman's garden that's square, † side 200 yds.
Is a circular fountain* of water that's clear; * diam. 8 yds.
The gardener has ordered a shrubbery to make, † the walks are
From the pond to two walks †, and the area to take †, parallel to the
But it puzzles him quite.—For in curvature space, garden walls
Not being acquainted.—So he begs it a place, and distant
In your Di'ry of fame; and whoever unties therefrom
This knot, with your leave, will be sure of the prize. 47.24771 yds.
¶ If right lines be drawn through A, the extremity of the diameter of the pond that is parallel to the walks, and from the points M, M, &c. where these lines cut the circum. tangents, be drawn to cut the diam. produced in T, T, &c. then if from T, T, &c. be demitted upon the first mentioned lines cutting them at right angles in Q, Q, &c. these points Q, Q, &c. shall be in the fence of the shrubbery. He desires your ingenious correspondents to describe the fence, and give the area.

¶ All Letters for the Use of this Diary, are desired to be directed thus:—Cote and Hall, to be left at Mr. Drewry's, Printer, in Derby. Post-paid to come to Hand before the First of May.

FINIS.